

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Peter Szekely Examiner #: 69764 Date: 3/24/06
 Art Unit: 1714 Phone Number 301-272-1124 Serial Number: 101720469
 Mail Box and Bldg/Room Location: _____ Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Phosphorus containing polymer compound, synthesizing method thereof,

Inventors (please provide full names): antioxidant, high durability polymer electrolyt
compos. te electrode and fuel cell
Yuko Takeoka; Takumi Taniguchi; Masahiro Takami; Masahiro Riku Kaw.

Earliest Priority Filing Date: 11/28/02

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

See enclosed claims. Please, mark pertinent close references.
 If you cannot find invention say so.

SCIENTIFIC REFERENCE BR
 Sci. & Tech. Inf. Ctr.

MAR 2 2006

Pat. & T.M. Office

STAFF USE ONLY

Type of Search		Vendors and cost where applicable
Searcher: <u>ukh</u>	NA Sequence (#) _____	STN <u>687-21</u>
Searcher Phone #: _____	AA Sequence (#) _____	Dialog _____
Searcher Location: _____	Structure (#) <u>2</u>	Questel/Orbit _____
Date Searcher Picked Up: <u>3/27/06</u>	Bibliographic _____	Dr. Link _____
Date Completed: <u>3/27/06</u>	Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: <u>6:00</u>	Fulltext _____	Sequence Systems _____
Clerical Prep Time: <u>30</u>	Patent Family _____	WWW/Internet _____
Online Time: <u>240</u>	Other _____	Other (specify) _____



STIC Search Report

EIC 1700

STIC Database Tracking Number: 183167

TO: Peter Szekely
Location: REM 10D29
Art Unit : 1714
March 27, 2006

Case Serial Number: 10/720469

From: Usha Shrestha
Location: EIC 1700
REMSSEN 4B28
Phone: 571/272-3519
usha.shrestha@uspto.gov

Search Notes

Examiner Szekely,

The CAS Registry file has indexed the applicant's compound of Claim 1 as phosphonate compound and phenoxybenzoyl phenylene compound separately as reactants but not as the structure of Claim 1. So to cover both possibilities I did the structure search (see answer set L20) as well as registry Number search (see answer sets L16 l17 l18 l19 l48) to complete the search. If you have any questions please let me know.
Thank you.



STIC Search Results Feedback Form

EIC17000

Questions about the scope or the results of the search? Contact *the EIC searcher* or contact:

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

Voluntary Results Feedback Form

- I am an examiner in Workgroup: Example: 1713
- Relevant prior art **found**, search results used as follows:

- ☐ 102 rejection
- ☐ 103 rejection
- ☐ Cited as being of interest.
- ☐ Helped examiner better understand the invention.
- ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
(journal articles, conference proceedings, new product announcements etc.)

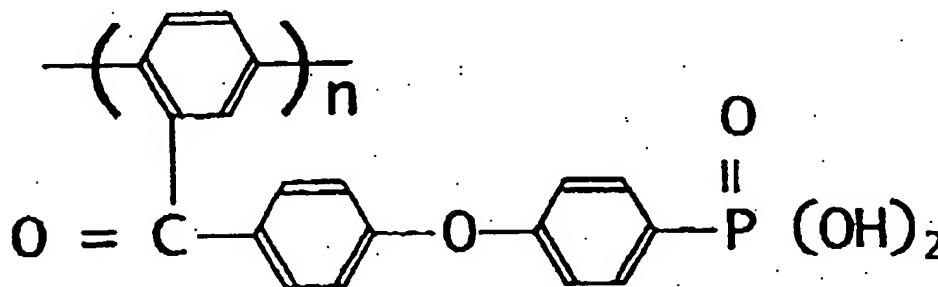
- Relevant prior art **not found**:

- ☐ Results verified the lack of relevant prior art (helped determine patentability).
- ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

WHAT IS CLAIMED IS:

1. Phosphonated poly(4-phenoxybenzoyl-1,4-phenylene) having a following repeating unit.



(It is to be noted in the above formula that "n" represents a number of 5 to 10000.)

2. A method for synthesizing the phosphonated poly(4-phenoxybenzoyl-1,4-phenylene) according to claim 1, comprising:

halogenating a phenoxy group of the poly(4-phenoxybenzoyl-1,4-phenylene) such that the phenoxy group is converted to a halogen group;

phosphonic acid esterifying the halogen group such that the halogen group is converted to a phosphonic acid ester group; and

deesterifying the phosphonic acid ester group.

3. An antioxidant including the phosphonated poly(4-phenoxybenzoyl-1,4-phenylene) according to claim 1.

4. A high-durability polymer electrolyte composite including a fluoropolymer electrolyte and the phosphonated poly(4-phenoxybenzoyl-1,4-phenylene) according to claim 1.

5. The polymer electrolyte composite according to claim 4, wherein a percentage of the phosphonated poly(4-phenoxybenzoyl-1,4-phenylene) content is equal to or higher than 0.1 mass % of the entire polymer electrolyte composite.

6. The polymer electrolyte composite according to claim 5, wherein a percentage of the phosphonated poly(4-phenoxybenzoyl-1,4-phenylene) content is equal to or higher than 5 mass % of the entire polymer electrolyte composite.

7. The polymer electrolyte composite according to claim 4, wherein an antioxidant other than the phosphonated poly(4-phenoxybenzoyl-1,4-phenylene) is added to the polymer electrolyte composite, and a percentage of all antioxidants is 0.005 to 50 mass % of the polymer electrolyte composite.
8. The polymer electrolyte composite according to claim 7, wherein a percentage of the all antioxidants is 0.01 to 10 mass % of the polymer electrolyte composite.
9. An electrode for a fuel cell comprising:
the polymer electrolyte composite according to claim 4 and
a catalyst support conductive material.
10. A fuel cell comprising the electrode according to claim 9.

=> fil reg

FILE 'REGISTRY' ENTERED AT 12:41:59 ON 27 MAR 2006

=> d his ful

FILE 'HCAPLUS' ENTERED AT 08:33:09 ON 27 MAR 2006

L1 1 SEA ABB=ON PLU=ON US20040138352/PN
SEL RN

FILE 'REGISTRY' ENTERED AT 08:33:38 ON 27 MAR 2006

L2 2 SEA ABB=ON PLU=ON (154100-93-3/BI OR 762-04-9/BI)

FILE 'LREGISTRY' ENTERED AT 08:33:51 ON 27 MAR 2006

L3 STR

L4 STR

FILE 'REGISTRY' ENTERED AT 08:36:33 ON 27 MAR 2006

L5 0 SEA SSS SAM L3 AND L4

L6 STR L3

L7 3 SEA SSS SAM L6 AND L4

L8 STR L6

L9 SCR 2043

L10 1 SEA SSS SAM L8 AND L4 AND L9

L11 3 SEA SSS SAM L8 AND L4

L12 1 SEA ABB=ON PLU=ON 762-04-9/RN

L13 1 SEA ABB=ON PLU=ON 154100-93-3/RN

L14 294 SEA SSS FUL L8 AND L4

L15 10569 SEA ABB=ON PLU=ON FLPO/PCT
SAV L14 SZE469/A

FILE 'HCAPLUS' ENTERED AT 09:53:48 ON 27 MAR 2006

L16 3251 SEA ABB=ON PLU=ON L12

L17 109 SEA ABB=ON PLU=ON L12/D

L18 16 SEA ABB=ON PLU=ON L13/D

L19 30 SEA ABB=ON PLU=ON L13

L20 144 SEA ABB=ON PLU=ON L14

L21 81507 SEA ABB=ON PLU=ON L15

L22 1 SEA ABB=ON PLU=ON L16 AND L18

L23 58 SEA ABB=ON PLU=ON L16 AND 19

FILE 'HCAPLUS' ENTERED AT 10:05:49 ON 27 MAR 2006

L24 0 SEA ABB=ON PLU=ON L20 AND L21

L25 0 SEA ABB=ON PLU=ON L17 AND L19

L26 1 SEA ABB=ON PLU=ON L16 AND ?PHENOXYBENZOYLPHEN?

FILE 'REGISTRY' ENTERED AT 10:12:44 ON 27 MAR 2006

L27 1 SEA ABB=ON PLU=ON PHOSPHONIC ACID/CN

FILE 'HCAPLUS' ENTERED AT 10:13:14 ON 27 MAR 2006

L28 4915 SEA ABB=ON PLU=ON L27/D

L29 0 SEA ABB=ON PLU=ON L28 AND ?PHENOXYBENZOYLPHEN?

L30 0 SEA ABB=ON PLU=ON L28 AND ?PHENOXYBENZOYL?

L31 0 SEA ABB=ON PLU=ON L28 AND PMS/IT

L32 5 SEA ABB=ON PLU=ON L20 AND (ANTIOXIDAN? OR ANTI(A)OXID
AN? OR ELECTROLYT? OR ELECTROD? OR FUEL(A)CELL? OR
FUELCELL?)

L33 1 SEA ABB=ON PLU=ON L23 AND (ANTIOXIDAN? OR ANTI(A)OXID
AN? OR ELECTROLYT? OR ELECTROD? OR FUEL(A)CELL? OR
FUELCELL?)

L34 0 SEA ABB=ON PLU=ON L17 AND ?PHENOXYBENZOYL?

L35 1 SEA ABB=ON PLU=ON L16 AND ?PHENOXYBENZOYL?
 L36 7 SEA ABB=ON PLU=ON L22 OR L24 OR L25 OR L26 OR (L30
 OR L31 OR L32 OR L33 OR L34 OR L35)
 L37 1 SEA ABB=ON PLU=ON L1 AND L36
 L38 13 SEA ABB=ON PLU=ON L20 AND POLYMER?/SC,SX
 L39 2 SEA ABB=ON PLU=ON L19 AND PHOSPHON?
 L40 8 SEA ABB=ON PLU=ON L36 OR L39

FILE 'REGISTRY' ENTERED AT 10:45:23 ON 27 MAR 2006

L41 1839 SEA ABB=ON PLU=ON ?PHENOXYBENZOYL?/CNS
 L42 10 SEA ABB=ON PLU=ON L41(3A)PHENYLENE/CNS
 E PARMAX/CN
 L43 1 SEA ABB=ON PLU=ON "PARMAX 2000"/CN
 E POLY-X/CN
 L44 1 SEA ABB=ON PLU=ON "POLY-X 200"/CN
 L45 1 SEA ABB=ON PLU=ON "POLY-X 2000"/CN
 E PX 2000/CN
 L46 2 SEA ABB=ON PLU=ON "PX 2000"/CN
 L47 2 SEA ABB=ON PLU=ON (L43 OR L44 OR L45 OR L46)

FILE 'HCAPLUS' ENTERED AT 11:04:49 ON 27 MAR 2006

L48 34 SEA ABB=ON PLU=ON L42
 L49 2 SEA ABB=ON PLU=ON L48 AND (PHOSPHON? OR PHOSPHIT?)
 L50 14 SEA ABB=ON PLU=ON L48 AND POLYMER?/SC,SX
 L51 33 SEA ABB=ON PLU=ON L38 OR L40 OR L50
 L52 0 SEA ABB=ON PLU=ON L48 AND L28
 L53 10224 SEA ABB=ON PLU=ON L27
 L54 0 SEA ABB=ON PLU=ON L48 AND L53
 L55 33 SEA ABB=ON PLU=ON L51 OR L52 OR L54
 L56 1 SEA ABB=ON PLU=ON L48 AND (L16 OR L17)
 L57 33 SEA ABB=ON PLU=ON L55 OR L56
 L58 2 SEA ABB=ON PLU=ON L19 AND (?PHOSPHO? OR ?PHOSPHIT?)
 L59 2 SEA ABB=ON PLU=ON L48 AND (?PHOSPHO? OR ?PHOSPHIT?)
 L60 33 SEA ABB=ON PLU=ON (L57 OR L58 OR L59)
 L61 0 SEA ABB=ON PLU=ON L28 AND L48
 L62 33 SEA ABB=ON PLU=ON L60 OR (L29 OR L30) OR L61
 D QUE L62

=> d que 162

L4 STR

4
 O
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 >
 O~P~O
 1 2 3

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

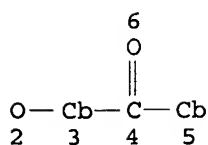
GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 4

STEREO ATTRIBUTES: NONE

L8 STR



NODE ATTRIBUTES:

CONNECT IS E2 RC AT 2
 DEFAULT MLEVEL IS ATOM
 GGCAT IS MCY UNS AT 3
 GGCAT IS MCY UNS AT 5
 DEFAULT ECLEVEL IS LIMITED
 ECOUNT IS E6 C AT 3
 ECOUNT IS E6 C AT 5

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 5

STEREO ATTRIBUTES: NONE

L12 1 SEA FILE=REGISTRY ABB=ON PLU=ON 762-04-9/RN
 L13 1 SEA FILE=REGISTRY ABB=ON PLU=ON 154100-93-3/RN
 L14 294 SEA FILE=REGISTRY SSS FUL L8 AND L4
 L15 10569 SEA FILE=REGISTRY ABB=ON PLU=ON FLPO/PCT
 L16 3251 SEA FILE=HCAPLUS ABB=ON PLU=ON L12
 L17 109 SEA FILE=HCAPLUS ABB=ON PLU=ON L12/D
 L18 16 SEA FILE=HCAPLUS ABB=ON PLU=ON L13/D
 L19 30 SEA FILE=HCAPLUS ABB=ON PLU=ON L13
 L20 144 SEA FILE=HCAPLUS ABB=ON PLU=ON L14
 L21 81507 SEA FILE=HCAPLUS ABB=ON PLU=ON L15
 L22 1 SEA FILE=HCAPLUS ABB=ON PLU=ON L16 AND L18
 L23 58 SEA FILE=HCAPLUS ABB=ON PLU=ON L16 AND 19
 L24 0 SEA FILE=HCAPLUS ABB=ON PLU=ON L20 AND L21
 L25 0 SEA FILE=HCAPLUS ABB=ON PLU=ON L17 AND L19
 L26 1 SEA FILE=HCAPLUS ABB=ON PLU=ON L16 AND ?PHENOXYBENZOYL
 LPHEN?
 L27 1 SEA FILE=REGISTRY ABB=ON PLU=ON PHOSPHONIC ACID/CN
 L28 4915 SEA FILE=HCAPLUS ABB=ON PLU=ON L27/D
 L29 0 SEA FILE=HCAPLUS ABB=ON PLU=ON L28 AND ?PHENOXYBENZOYL
 LPHEN?
 L30 0 SEA FILE=HCAPLUS ABB=ON PLU=ON L28 AND ?PHENOXYBENZOYL
 L?
 L31 0 SEA FILE=HCAPLUS ABB=ON PLU=ON L28 AND PMS/IT
 L32 5 SEA FILE=HCAPLUS ABB=ON PLU=ON L20 AND (ANTIOXIDAN?
 OR ANTI (A) OXIDAN? OR ELECTROLYT? OR ELECTROD? OR
 FUEL (A) CELL? OR FUELCELL?)
 L33 1 SEA FILE=HCAPLUS ABB=ON PLU=ON L23 AND (ANTIOXIDAN?
 OR ANTI (A) OXIDAN? OR ELECTROLYT? OR ELECTROD? OR
 FUEL (A) CELL? OR FUELCELL?)
 L34 0 SEA FILE=HCAPLUS ABB=ON PLU=ON L17 AND ?PHENOXYBENZOYL
 L?
 L35 1 SEA FILE=HCAPLUS ABB=ON PLU=ON L16 AND ?PHENOXYBENZOYL
 L?
 L36 7 SEA FILE=HCAPLUS ABB=ON PLU=ON L22 OR L24 OR L25 OR
 L26 OR (L30 OR L31 OR L32 OR L33 OR L34 OR L35)
 L38 13 SEA FILE=HCAPLUS ABB=ON PLU=ON L20 AND POLYMER?/SC, SX
 L39 2 SEA FILE=HCAPLUS ABB=ON PLU=ON L19 AND PHOSPHON?

L40 8 SEA FILE=HCAPLUS ABB=ON PLU=ON L36 OR L39
 L41 1839 SEA FILE=REGISTRY ABB=ON PLU=ON ?PHENOXYBENZOYL?/CNS

 L42 10 SEA FILE=REGISTRY ABB=ON PLU=ON L41(3A) PHENYLENE/CNS

 L48 34 SEA FILE=HCAPLUS ABB=ON PLU=ON L42
 L50 14 SEA FILE=HCAPLUS ABB=ON PLU=ON L48 AND POLYMER?/SC,SX

 L51 33 SEA FILE=HCAPLUS ABB=ON PLU=ON L38 OR L40 OR L50
 L52 0 SEA FILE=HCAPLUS ABB=ON PLU=ON L48 AND L28
 L53 10224 SEA FILE=HCAPLUS ABB=ON PLU=ON L27
 L54 0 SEA FILE=HCAPLUS ABB=ON PLU=ON L48 AND L53
 L55 33 SEA FILE=HCAPLUS ABB=ON PLU=ON L51 OR L52 OR L54
 L56 1 SEA FILE=HCAPLUS ABB=ON PLU=ON L48 AND (L16 OR L17)
 L57 33 SEA FILE=HCAPLUS ABB=ON PLU=ON L55 OR L56
 L58 2 SEA FILE=HCAPLUS ABB=ON PLU=ON L19 AND (?PHOSPHO? OR
 ?PHOSPHIT?)
 L59 2 SEA FILE=HCAPLUS ABB=ON PLU=ON L48 AND (?PHOSPHO? OR
 ?PHOSPHIT?)
 L60 33 SEA FILE=HCAPLUS ABB=ON PLU=ON (L57 OR L58 OR L59)
 L61 0 SEA FILE=HCAPLUS ABB=ON PLU=ON L28 AND L48
 L62 33 SEA FILE=HCAPLUS ABB=ON PLU=ON L60 OR (L29 OR L30)
 OR L61

=> fil hcap
 FILE 'HCAPLUS' ENTERED AT 12:42:27 ON 27 MAR 2006

=> d l62 1-33 ibib abs hitstr hitind

L62 ANSWER 1 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2005:979680 HCAPLUS
 DOCUMENT NUMBER: 143:287495
 TITLE: Block copolymers containing phosphoryl groups
 in one segment for inexpensive, halogen-free
 and chemically stable ion exchangers with high
 mechanical strength
 INVENTOR(S): Tsutsumi, Osamu; Yamamoto, Ryotaro
 PATENT ASSIGNEE(S): Ebara Corporation, Japan
 SOURCE: PCT Int. Appl., 41 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2005082964	A1	20050909	WO 2005-JP3426	

2005
0223

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ,
 CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG,
 ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP,
 KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
 MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL,
 PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN,
 TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
 RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,

ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH,
 CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT,
 LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF,
 CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.:

JP 2004-53048

A

2004

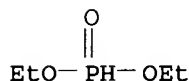
0227

AB Title copolymer comprises ≥ 2 polymer segments, where
 ≥ 1 polymer segment contains a phosphoryl derivative and
 ≥ 1 polymer segment contains no phosphoryl derivative. 20 G of
 tri-Et phosphite was reacted with 8.0 g of poly(4-
 chloromethylstyrene)-b-polystyrene (19 mol% of
 4-chloromethylstyrene) at 100° for one week and the
 resultant polymer was precipitated with methanol and THF/hexane, dried
 under reduced pressure to give 3.6 g of block copolymer containing 10
 mol% of phosphorous structural units.

IT 762-04-9DP, Diethyl phosphite, reaction products with
 4-Chloromethylstyrene-styrene diblock copolymer
 (block copolymers containing phosphoryl groups in one segment for
 inexpensive, halogen-free and chemical stable ion exchangers with
 high mech. strength)

RN 762-04-9 HCAPLUS

CN Phosphonic acid, diethyl ester (8CI, 9CI) (CA INDEX NAME)



IC ICM C08F293-00
 ICS C08F008-40

CC 38-3 (Plastics Fabrication and Uses)

IT Fuel cells
 (proton exchange membrane; block copolymers containing phosphoryl
 groups in one segment for inexpensive, halogen-free and chemical
 stable ion exchangers with high mech. strength)

IT 122-52-1DP, Triethyl phosphite, reaction products with
 4-Chloromethylstyrene-styrene diblock copolymer 762-04-9DP
 , Diethyl phosphite, reaction products with 4-Chloromethylstyrene-
 styrene diblock copolymer 729593-37-7DP, 4-Chloromethylstyrene-
 styrene diblock copolymer, reaction products with tri-Et phosphite
 or di-Et phosphite
 (block copolymers containing phosphoryl groups in one segment for
 inexpensive, halogen-free and chemical stable ion exchangers with
 high mech. strength)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L62 ANSWER 2 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:201098 HCAPLUS

DOCUMENT NUMBER: 142:469951

TITLE: Tailor-made surfaces by photochemical
 attachment of polymer films to oxide surfaces.
 New pathways towards protective coating

AUTHOR(S): Pahnke, Joerg; Ruehe, Juergen

CORPORATE SOURCE: Institute for Microsystem Technology (IMTEK),
 Albert-Ludwigs-University of Freiburg,

SOURCE: Freiburg, D-79110, Germany
Polymer Preprints (American Chemical Society,
Division of Polymer Chemistry) (2005), 46(1),
487-488
CODEN: ACPPAY; ISSN: 0032-3934

PUBLISHER: American Chemical Society, Division of Polymer
Chemistry

DOCUMENT TYPE: Journal; (computer optical disk)

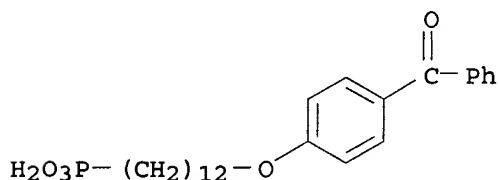
LANGUAGE: English

AB An approach for the modification of Al surfaces with polymeric
coatings was applied involving a 2 step procedure to stabilize the
interface between the polymer and the Al substrate. First
phosphonic acids were self assembled on Al surfaces and then
polymers were photochem. attached by the reaction of benzophenone
moieties on the surface with the spin casted polymer film. A
 α,ω -functionalized phosphonic acid
([12-(4-benzophenone)-dodecyl]-phosphonic acid) was synthesized
and immobilized on an Al/Alox surface. Thick overcoats of the
polymers were prepared by dip-coating from polymer solns. After
drying, samples were illuminated for 60 min at 365 nm and
non-bound polymer was removed. A stable phosphonic acid monolayer
was obtained on the Al surface within .apprx.30 min. The further
coating was performed with the polymers poly(methylmethacrylate)
and poly(hydroxyethylmethacrylate) and with a perfluorinated
polymethacrylate. All polymers were attached successfully to the
surface. Depending on the mol. weight of the polymers layers of a
thickness of 5-11 nm were obtained. In corrosion expts. the
prepared polymer coatings showed a better performance in strong
acidic aqueous media than only physisorbed polymers.

IT 769972-67-0P
(approach for modification of Al surfaces with polymeric
coatings involving photochem. procedure to stabilize interface
between polymer and Al substrate)

RN 769972-67-0 HCAPLUS

CN Phosphonic acid, [12-(4-benzoylphenoxy)dodecyl]- (9CI) (CA INDEX
NAME)



CC 66-3 (Surface Chemistry and Colloids)
Section cross-reference(s): 35, 74

IT 769972-67-0P
(approach for modification of Al surfaces with polymeric
coatings involving photochem. procedure to stabilize interface
between polymer and Al substrate)

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L62 ANSWER 3 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:1141924 HCAPLUS
DOCUMENT NUMBER: 142:201406

TITLE: Sulfonated derivatives of polyparaphenylene as proton conducting membranes for direct methanol fuel cell application

AUTHOR(S): Le Ninivin, C.; Balland-Longeau, A.; Demattei, D.; Coutanceau, C.; Lamy, C.; Leger, J. M.

CORPORATE SOURCE: Lab. mater. Org. Dielectriques Caracterisation Physico-Chim., CEA Le Ripault, Monts, 37260, Fr.

SOURCE: Journal of Applied Electrochemistry (2004), 34(11), 1159-1170
CODEN: JAELEBJ; ISSN: 0021-891X

PUBLISHER: Kluwer Academic Publishers

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Proton conducting polymers derived from polybenzoyl-1,4-phenylene (PBP) and poly-p-phenoxybenzoyl-1,4-phenylene (PPBP) were synthesized by the Colon synthesis technique. The sulfonation of these proton conducting polymers was carried out using either sulfuric acid or tetramethylsilylchlorosulfonate (TMSCl) as sulfonating agent, and their thermal properties were evaluated. Both sulfonated PBP and PPBP are thermally stable up to at least 215 °C. The sulfonated sPPBP exhibited good conductivity as proton conducting membranes at room temperature and were tested as electrolyte membranes for a single direct methanol fuel cell (DMFC) in terms of water absorption, methanol permeability and elec. performance. The water uptake of the sPPBP is larger than that of the sPBP, i.e., 65 and 43 mol%, resp. The permeability to methanol is 10 times lower than sPPBP and sPBP compared to a Nafion membrane. In spite of this, performance in a single DMFC is twice inferior to that with Nafion 117. Optimization of the sulfonation level and of the electrode-membrane interfaces was lead to better results.

IT 154100-93-3P, Poly[(4-phenoxybenzoyl)-1,4-phenylene]
(sulfonated derivs. of polyparaphenylene as proton conducting membranes for direct methanol fuel cell application)

RN 154100-93-3 HCAPLUS

CN Poly[(4-phenoxybenzoyl)-1,4-phenylene] (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 35, 36, 38, 76

IT 150347-09-4P, 2,5-Dichlorobenzophenone homopolymer 150385-13-0P,
Poly(benzoyl-1,4-phenylene) 151173-26-1P, 2,5-Dichloro-4'-
phenoxybenzophenone homopolymer 154100-93-3P,
Poly[(4-phenoxybenzoyl)-1,4-phenylene]
(sulfonated derivs. of polyparaphenylene as proton conducting membranes for direct methanol fuel cell application)

REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L62 ANSWER 4 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:991152 HCAPLUS

DOCUMENT NUMBER: 142:135401

TITLE: Using Benzophenone-Functionalized Phosphonic Acid To Attach Thin Polymer Films to Titanium Surfaces

AUTHOR(S): Griep-Raming, Nina; Karger, Matthias; Menzel, Henning

CORPORATE SOURCE: Institut fuer Technische Chemie, Abt. TC

SOURCE: Makromolekularer Stoffe, Technische
 Universitaet Braunschweig, Braunschweig,
 38106, Germany
 PUBLISHER: Langmuir (2004), 20(26), 11811-11814
 CODEN: LANGD5; ISSN: 0743-7463
 DOCUMENT TYPE: American Chemical Society
 LANGUAGE: Journal
 English

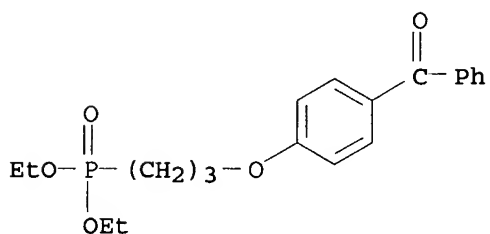
AB Synthesis of a benzophenone-functionalized phosphonic acid, its immobilization onto Ti-6Al-4V surfaces, and its testing as a photochem. anchor for different spin-coated polymers were reported. The method of benzophenone-based photochem. grafting was expanded to titanium surfaces. The corresponding anchor, a benzophenone with a phosphonic acid group was synthesized in very good yields in a three-step synthesis. It is easy to store and to handle compared to the corresponding silane. Monolayers of the anchor can be prepared by simple depositing-heating-washing cycles. Polymer mols. in direct contact to the benzophenone residues of these monolayers are covalently bound upon illumination with UV light of about 345 nm. As expected from the binding mechanism, the resulting film thickness is a function of the mol. weight of the deposited polymer. Altogether the photochem. grafting approach with a phosphonic acid headgroup is very versatile in two respects. First the photochem. covalent attachment offers a wide variety of bonding possibilities: Literally all kinds of polymers can easily be bound to a surface, but the method is not restricted to this purpose.

IT 824412-78-4P

(3-(4-Oxybenzophenone)propylphosphonic acid; in preparation of benzophenone-functionalized phosphonic acid to attach thin polymer films to titanium surfaces)

RN 824412-78-4 HCAPLUS

CN Phosphonic acid, [3-(4-benzoylphenoxy)propyl]-, diethyl ester (9CI) (CA INDEX NAME)

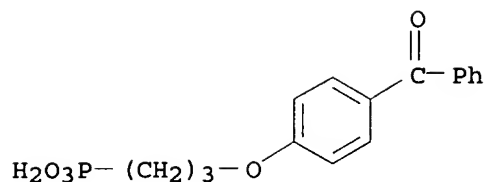


IT 824412-77-3P

(immobilized on titanium alloy surface; preparation of benzophenone-functionalized phosphonic acid to attach thin polymer films to titanium surfaces)

RN 824412-77-3 HCAPLUS

CN Phosphonic acid, [3-(4-benzoylphenoxy)propyl]- (9CI) (CA INDEX NAME)



CC 37-3 (Plastics Manufacture and Processing)

Section cross-reference(s): 35

IT 824412-78-4P

(3-(4-Oxybenzophenone)propylphosphonic acid; in preparation of benzophenone-functionalized phosphonic acid to attach thin polymer films to titanium surfaces)

IT 824412-77-3P

(immobilized on titanium alloy surface; preparation of benzophenone-functionalized phosphonic acid to attach thin polymer films to titanium surfaces)

REFERENCE COUNT: 41 THERE ARE 41 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L62 ANSWER 5 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:621057 HCAPLUS

DOCUMENT NUMBER: 141:314734

TITLE: Synthesis and properties of new sulfonated poly(p-phenylene) derivatives for proton exchange membranes. I

AUTHOR(S): Ghassemi, Hossein; McGrath, James E.

CORPORATE SOURCE: Case Power Institute, Department of Chemical Engineering, Case Western Reserve University, Cleveland, OH, USA

SOURCE: Polymer (2004), 45(17), 5847-5854

CODEN: POLMAG; ISSN: 0032-3861

PUBLISHER: Elsevier Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Several high mol. weight poly(2,5-benzophenone) derivs. were synthesized by high yield nickel-catalyzed coupling polymerization of 2,5-dichloro-4'-substituted benzophenones. The monomers were prepared by Friedel-Crafts catalyzed reaction of 2,5-dichlorobenzoyl chloride and several aromatic compds. The resulting polymers are organosol. and show no evidence of crystallinity by differential scanning calorimetry (DSC). The temps. of 5% weight loss of the polymers via dynamic thermogravimetric anal. in air were above 480 °C. Sulfonation of selected polymers utilizing concentrated or fuming sulfuric acid at room temperature introduced sulfonic acid moieties to the aromatic side group. Activated fluoro aryl groups were also used to generate pendent sulfonated functionalities. The sulfonated polymers were examined for ion exchange capacities, water absorption capacities and proton conductivities. The sulfonated polymers were not good film formers, but could be demonstrated to show high values of proton conductivity in the range of 0.06-0.11 S/cm when supported on glass fabrics or via polymer blending strategies.

IT 154100-93-3P, Poly[(4-phenoxybenzoyl)-1,4-phenylene] (preparation and sulfonation of)

RN 154100-93-3 HCAPLUS

CN Poly[(4-phenoxybenzoyl)-1,4-phenylene] (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CC 35-7 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 76

IT 150347-09-4P, 2,5-Dichlorobenzophenone homopolymer 150385-13-0P,
2,5-Dichlorobenzophenone homopolymer, sru 151173-26-1P
154100-93-3P, Poly[(4-phenoxybenzoyl)-1,4-phenylene]
176742-00-0P, Poly[(4-fluorobenzoyl)-1,4-phenylene] 517104-73-3P
530124-26-6P 765900-32-1P 765900-34-3P 765910-69-8P
(preparation and sulfonation of)

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L62 ANSWER 6 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:492276 HCAPLUS

DOCUMENT NUMBER: 141:39009

TITLE: Preparation of **phosphorus**-containing
polymers for use as antioxidants, highly
resistant polymer electrolyte composites,
electrodes and fuel cells

INVENTOR(S): Taniguchi, Takumi; Takami, Masayoshi;
Rikukawa, Masahiro; Takeoka, Yuko

PATENT ASSIGNEE(S): Toyota Jidosha K. K., Japan

SOURCE: Ger. Offen., 13 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10355619	A1	20040617	DE 2003-10355619	2003 1128
JP 2004175997	A2	20040624	JP 2002-346180	2002 1128
US 2004138352	A1	20040715	US 2003-720469	2003 1125
CA 2451180	AA	20040528	CA 2003-2451180	2003 1126
PRIORITY APPLN. INFO.:			JP 2002-346180	A 2002 1128

AB The title polymers are prepared by halogenating the phenoxy group of poly[(4-**phenoxybenzoyl**)-p-phenylenes] (I), displacing the halogen atom with a (dialkoxy)phosphoryl group, and hydrolyzing the **phosphonate** ester group. I was brominated to form a p-bromophenoxy group which was treated with $\text{HPO}(\text{OEt})_2$ in N-methylpyrrolidone containing NiCl_2 at 155° for 24 h to give a **phosphonate** ester which was hydrolyzed in the presence of $\text{Me}_2\text{S}/\text{MeSO}_3\text{H}$ to give a **phosphonated** polymer. Use of the polymer as an electrode for fuel cells is exemplified.

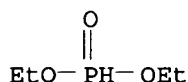
IT 154100-93-3, Poly[(4-**phenoxybenzoyl**
)-1,4-phenylene]
(bromination and **phosphonation**)
RN 154100-93-3 HCAPLUS
CN Poly[(4-**phenoxybenzoyl**)-1,4-phenylene] (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 154100-93-3D, Poly[(4-**phenoxybenzoyl**
)-1,4-phenylene], **phosphonic acid** derivs.
(preparation of **phosphorus**-containing polymers for use as
antioxidants, highly resistant polymer electrolyte composites,
electrodes and fuel cells)
RN 154100-93-3 HCAPLUS
CN Poly[(4-**phenoxybenzoyl**)-1,4-phenylene] (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 762-04-9, Diethyl **phosphonate**
(reaction with poly[((bromophenoxy)benzoyl)poly-1,4-phenylene])
RN 762-04-9 HCAPLUS
CN Phosphonic acid, diethyl ester (8CI, 9CI) (CA INDEX NAME)



IC ICM C08G061-10
ICS C08G085-00; C08F008-40; C08L065-02; C09K015-32; H01M008-02;
H01M004-86
CC 35-8 (Chemistry of Synthetic High **Polymers**)
Section cross-reference(s): 52
ST **phosphonic acid** polymeric prepn;
polyphenoxybenzoylphenylene phosphonic acid
deriv; diethyl **phosphonate** reaction brominated polymer;
fuel cell electrode polymer **phosphonated**
IT Antioxidants
(**phosphorus**-containing polymers for use as antioxidants)
IT Electrodes
Fuel cells
(**phosphorus**-containing polymers for use as electrodes for
fuel cells)
IT Polymer electrolytes
(**phosphorus**-containing polymers for use as highly
resistant polymer electrolyte composites)
IT 154100-93-3, Poly[(4-**phenoxybenzoyl**
)-1,4-phenylene]
(bromination and **phosphonation**)
IT 154100-93-3D, Poly[(4-**phenoxybenzoyl**
)-1,4-phenylene], **phosphonic acid** derivs.
(preparation of **phosphorus**-containing polymers for use as
antioxidants, highly resistant polymer electrolyte composites,
electrodes and fuel cells)
IT 762-04-9, Diethyl **phosphonate**
(reaction with poly[((bromophenoxy)benzoyl)poly-1,4-phenylene])

L62 ANSWER 7 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:139363 HCAPLUS
DOCUMENT NUMBER: 140:182769
TITLE: Fluorine-containing poly(aryl ethers), curable

compositions, cured materials, adhesives, and ionic conductors therefrom, and manufacture of solvent-soluble engineering plastics therefor

INVENTOR(S): Akutagawa, Hironobu; Omote, Kazushi; Matsumoto, Takeshi; Nishiji, Ai; Yoshida, Masaya

PATENT ASSIGNEE(S): Nippon Shokubai Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 28 pp.
CODEN: JKXXAF

DOCUMENT TYPE: Patent

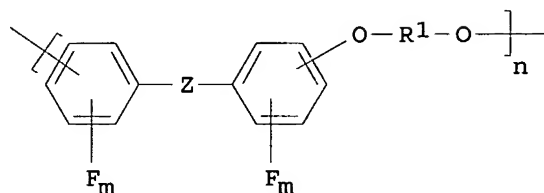
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004051978	A2	20040219	JP 2003-155624	2003 0530
PRIORITY APPLN. INFO.:			JP 2002-160397	A 2002 0531

GI



AB The F-containing poly(aryl ethers), showing high heat resistance and mech. strength, contain I units (R_1 = C1-150 divalent organic group; Z = divalent organic group, single bond; m = 1-4) and have OH and/or phosphoric acid groups in R_1 . Solvent-soluble widely-useful engineering plastics are manufactured using compds. containing 2 of phenolic OH groups and ≥ 1 alc. OH groups as starting materials. Also claimed are ionic conductors, useful for electrolyte membranes in fuel cells, etc., comprising F-containing poly(aryl ethers) having OH, carboxy, and/or PO₃H groups and proton conductivity-imparting agents. Thus, 4,4'-bis(2,3,4,5,6-pentafluorobenzoyl) di-Ph ether was copolymd. with Epicure 171N (resin) to give F-containing polyether-polyketone, which was mixed with tungstophosphoric acid and cured to give a film showing electrocond. $3.2 + 10^{-5}$ and $6.4 + 10^{-6}$ S/cm, at 80 and 140°, resp.

IT 659720-68-0DP, 4,4'-Bis(2,3,4,5,6-pentafluorobenzoyl) diphenyl ether-Epicure 171N copolymer ester with phosphoryl chloride, hydrolyzed
(fluorine-containing poly(aryl ethers) showing good heat resistance useful for adhesives and ionic conductors)

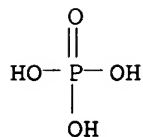
RN 659720-68-0 HCAPLUS

CN Methanone, (oxydi-4,1-phenylene)bis[(pentafluorophenyl)-, polymer with Epicure 171N, phosphate (9CI) (CA INDEX NAME)

CM 1

CRN 7664-38-2

CMF H3 O4 P



CM 2

CRN 659720-11-3

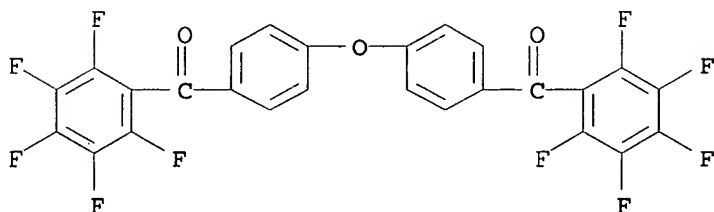
CMF (C26 H8 F10 O3 . Unspecified)x

CCI PMS

CM 3

CRN 213693-03-9

CMF C26 H8 F10 O3



CM 4

CRN 111274-84-1

CMF Unspecified

CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IC ICM C08G065-42

ICS H01B001-06; H01M008-02; H01M008-10

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 52

ST heat resistant arom fluoropolymer polyether polyketone ionic
conductor; pentafluorobenzoyl diphenyl ether copolymer
tungstophosphoric acid **fuel cell**

electrolyte; fluorine contg polyaryl ether heat resistance

mech strength adhesive; solvent sol engineering plastic arom

polyether heat resistance; hydroxy phosphoric contg fluoropolymer

polyether polyketone heat resistance

IT **Fuel cell electrolytes**

Heat-resistant materials

Ionic conductors

(fluorine-containing poly(aryl ethers) showing good heat resistance

useful for adhesives and ionic conductors)
IT 75-13-8DP, Isocyanic acid, esters, polymers with hydroxy-containing aromatic fluoropolymer-polyether-polyketones 323192-69-4P
659720-08-8P 659720-09-9P 659720-10-2P 659720-11-3P
659720-12-4P 659720-68-0DP, 4,4'-Bis(2,3,4,5,6-pentafluorobenzoyl) diphenyl ether-Epicure 171N copolymer ester with phosphoryl chloride, hydrolyzed 659733-00-3P 659733-01-4P (fluorine-containing poly(aryl ethers) showing good heat resistance useful for adhesives and ionic conductors)

L62 ANSWER 8 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:81793 HCAPLUS

DOCUMENT NUMBER: 140:271332

TITLE: Synthesis, characterization and ring-opening polymerization of cyclic (arylene phosphonate) oligomers

AUTHOR(S): Zhang, Hong-ming; Guo, Qing-zhong; Chen, Tian-lu

CORPORATE SOURCE: State Key Laboratory of Polymer Physics and Chemistry, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, Changchun, 130022, Peop. Rep. China

SOURCE: Chinese Journal of Polymer Science (2004), Volume Date 2003, 22(1), 83-89
CODEN: CJPSEG; ISSN: 0256-7679

PUBLISHER: Springer-Verlag

DOCUMENT TYPE: Journal

LANGUAGE: English

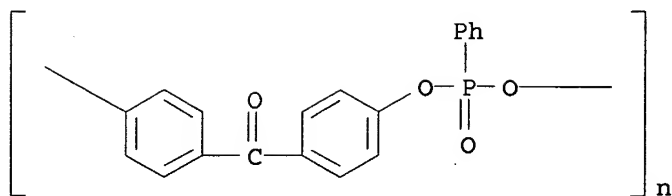
AB A series of cyclic (arylene phosphonate) oligomers were prepared by reaction of phenylphosphonic dichloride (PPD) with various bisphenols under pseudo-high dilution conditions via interfacial polycondensation. The yield of cyclic (arylene phosphonate) oligomers is over 85% by using hexadecyltrimethylammonium bromide as phase transfer catalyst (PTC) at 0 °C. The structures of the cyclic oligomers were confirmed by a combination of matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF-MS) and IR anal. These cyclic oligomers undergo facile ring-opening polymerization in the melt by using potassium 4,4'-biphenoxide as the initiator to give linear polyphosphonate. Free-radical ring-opening polymerization of cyclic(arylene phosphonate) oligomers containing sulfur linkages was also performed in the melt using 2,2'-dithiobis(benzothiazole) (DTB) as the initiator at 270°C and the resulting polymer had a Mw of 8 + 103 with a mol. weight distribution of 4. Ring-opening copolymn. of these cyclic oligomers with cyclic carbonate oligomers was also achieved. The average mol. weight of the resulting copolymer is higher than the corresponding homopolymer and the thermal stability of the copolymer is better than the corresponding homopolymer.

IT 107954-16-5P

(synthesis and ring-opening polymerization of cyclic (arylene phosphonate) oligomers)

RN 107954-16-5 HCAPLUS

CN Poly[oxy(phenylphosphinylidene)oxy-1,4-phenylenecarbonyl-1,4-phenylene] (9CI) (CA INDEX NAME)



CC 35-5 (Chemistry of Synthetic High Polymers)

IT 28851-37-8P 31868-41-4P 35398-70-0P 35429-90-4P
 56266-19-4P 62704-77-2P 107592-52-9P 107954-16-5P
 339592-86-8P 673477-33-3P

(synthesis and ring-opening polymerization of cyclic (arylene phosphonate) oligomers)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L62 ANSWER 9 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:773756 HCAPLUS

DOCUMENT NUMBER: 139:294547

TITLE: Structure and preparation of catalyst layer in
 polymer electrolyte fuel cell

INVENTOR(S): Yonamine, Takeshi; Hori, Yoshihiro; Takebe,
 Yasuo; Yasumoto, Eiichi; Kosako, Shinya;
 Sakai, Osamu; Uchida, Makoto

PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd.,
 Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003282067	A2	20031003	JP 2002-85111	2002 0326

PRIORITY APPLN. INFO.: JP 2002-85111

AB The catalyst layer is prepared by applying high valent
 p-fluoroethylene H ion conductive polymer electrolyte over the
 surface of the catalyst powder, which could generate radical by
 side reaction, and on the top of it covered with an ion conductive
 high valent carbohydrate polymer containing no p-fluoroethylene
 polymer. The technique improved the fuel cell life time and long
 time stability with reduced production cost.

IT 154100-93-3, Poly(4-phenoxybenzoyl-1,4-phenylene)
 (structure and preparation of catalyst layer in polymer electrolyte
 fuel cell)

RN 154100-93-3 HCAPLUS

CN Poly[(4-phenoxybenzoyl)-1,4-phenylene] (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IC ICM H01M004-86
ICS C08F214-26; C08F216-14; C08F290-06; H01M004-88; H01M008-10
CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 35, 76
IT 71-36-3, Butanol, uses 107-21-1, Ethyleneglycol, uses
142-82-5, Heptane, uses 7440-06-4, Platinum, uses 7440-44-0,
Carbon, uses 7782-42-5, Graphite, uses 11107-71-4
24981-14-4, PolyFluoroethylene 31694-16-3, Poly(oxy-1,4-
phenyleneoxy-1,4-phenylene carbonyl-1,4-phenylene)
154100-93-3, Poly(4-phenoxybenzoyl-1,4-phenylene)
(structure and preparation of catalyst layer in polymer electrolyte
fuel cell)

L62 ANSWER 10 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:707081 HCAPLUS

DOCUMENT NUMBER: 139:237814

TITLE: Liquid crystal devices and radically
polymerizable compositions forming
light-modulating layers thereof

INVENTOR(S): Hayashi, Masanao; Fujisawa, Noboru

PATENT ASSIGNEE(S): Dainippon Ink and Chemicals, Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
JP 2003253265	A2	20030910	JP 2002-51272	2002 0227

PRIORITY APPLN. INFO.: JP 2002-51272

2002
0227

AB The compns. contain liquid crystal mixts. and radically
polymerizable UV absorbers (or **antioxidants**) which are
chemical bonded to (i.e., stabilized in) matrix-forming components on
photopolymn. and therefore impose no hindrance to liquid crystal
alignment.

IT 594835-84-4P

(light-modulating layers; LCD having light-modulating containing
antioxidants or UV absorbers stabilized in transparent
matrixes)

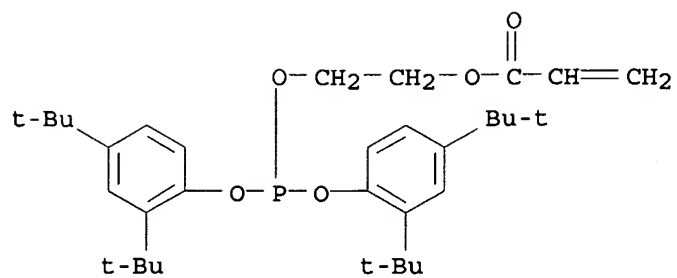
RN 594835-84-4 HCAPLUS

CN Tetradecanoic acid, (1-methylethylidene)bis[methyleneoxy[1-[[[(1-
oxo-2-propenyl)oxy]methyl]-2,1-ethanediyl]] ester, polymer with
2-[[bis[2,4-bis(1,1-dimethylethyl)phenoxy]phosphino]oxy]ethyl
2-propenoate and carbonylbis[(3-hydroxy-4,1-phenylene)oxy-2,1-
ethanediyl] bis(2-methyl-2-propenoate) (9CI) (CA INDEX NAME)

CM 1

CRN 594835-83-3

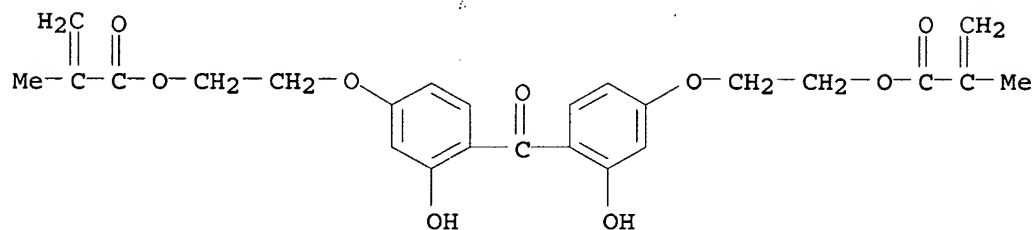
CMF C33 H49 O5 P



CM 2

CRN 594835-82-2

CMF C25 H26 O9

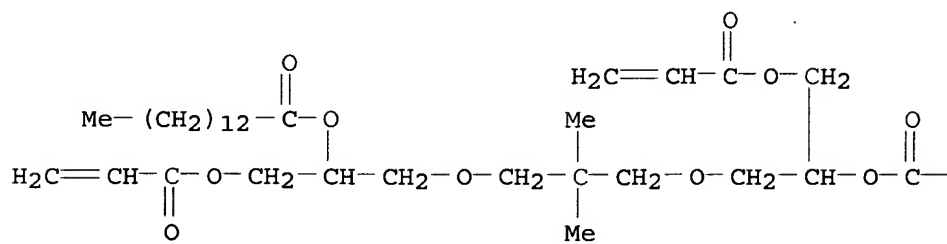


CM 3

CRN 594835-80-0

CMF C45 H80 O10

PAGE 1-A



PAGE 1-B

— (CH₂)₁₂—Me

IC ICM C09K019-54
ICS G02F001-1334

CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38, 75

ST liq crystal device light modulator additive stabilized;
polymerizable benzotriazole hindered phenol LCD light modulator;
alignment hindrance prevention **antioxidant** LCD light modulator

IT Liquid crystal displays
Optical modulators
(LCD having light-modulating containing **antioxidants** or UV absorbers stabilized in transparent matrixes)

IT **Antioxidants**
UV stabilizers
(polymerizable; LCD having light-modulating containing **antioxidants** or UV absorbers stabilized in transparent matrixes)

IT 460069-13-0P 594835-77-5P 594835-79-7P 594835-81-1P
594835-84-4P
(light-modulating layers; LCD having light-modulating containing **antioxidants** or UV absorbers stabilized in transparent matrixes)

L62 ANSWER 11 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:413359 HCAPLUS

DOCUMENT NUMBER: 139:133954

TITLE: Synthesis and evaluation of
phosphonated poly(4-phenoxybenzoyl-1,4-phenylene)

AUTHOR(S): Yanagimachi, S.; Kaneko, K.; Takeoka, Y.;
Rikukawa, M.

CORPORATE SOURCE: Department of Chemistry, Sophia University,
Tokyo, 102-8554, Japan

SOURCE: Synthetic Metals (2003), 135-136, 69-70

CODEN: SYMEDZ; ISSN: 0379-6779

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Poly(4-phenoxybenzoyl-1,4-phenylene) (PPBP), which has high thermal stability and mech. properties, was **phosphonated** by the three-step reaction. The **phosphonated** PPBP (P-PPBP) was characterized by FT-IR, ¹H-NMR, elemental anal., and ICP emission spectroscopy. The thermal and elec. properties of P-PPBP were also investigated. The P-PPBP film containing 40 mol % **phosphonic** acid groups showed a proton conductivity of about 10⁻⁴ S cm⁻¹ at 90%R.H.

IT **154100-93-3DP**, Poly[(4-phenoxybenzoyl)-1,4-phenylene], brominated, **triethylphosphite** and then deethylated derivs.

(synthesis and evaluation of **phosphonated** poly(4-phenoxybenzoyl-1,4-phenylene))

RN 154100-93-3 HCAPLUS

CN Poly[(4-phenoxybenzoyl)-1,4-phenylene] (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CC 35-8 (Chemistry of Synthetic High Polymers)

ST **phosphonated** polyphenoxybenzoyl phenylene thermal elec property

IT Ionic conductivity

(proton; synthesis and evaluation of **phosphonated**
poly(4-phenoxybenzoyl-1,4-phenylene))
IT Thermal stability
(synthesis and evaluation of **phosphonated**
poly(4-phenoxybenzoyl-1,4-phenylene))
IT Polyphenyls
(synthesis and evaluation of **phosphonated**
poly(4-phenoxybenzoyl-1,4-phenylene))
IT 154100-93-3DP, Poly[(4-phenoxybenzoyl)-1,4-phenylene],
brominated, **triethylphosphite** and then deethylated
derivs.
(synthesis and evaluation of **phosphonated**
poly(4-phenoxybenzoyl-1,4-phenylene))
REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L62 ANSWER 12 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:239622 HCAPLUS

DOCUMENT NUMBER: 139:263106

TITLE: Possibility and problems for polymer
electrolytes based on hydrocarbon polymers

AUTHOR(S): Rikukawa, Masahiro

CORPORATE SOURCE: Department of Chemistry, Sophia University,
Chiyoda-ku, Tokyo, 102-8554, Japan

SOURCE: Maku (2003), 28(1), 14-20

CODEN: MAKUD9; ISSN: 0385-1036

PUBLISHER: Nippon Maku Gakkai

DOCUMENT TYPE: Journal; General Review

LANGUAGE: Japanese

AB A review of the synthesis, electrochem. properties, and uses of,
and problems associated with, novel proton-conducting polymer
electrolyte membranes based on hydrocarbon-backbone polymers. Due
to their chemical stability, high proton-conductivity, and remarkable mech.
properties, perfluorinated polymer electrolytes such as Nafion,
Aciplex, Flemion, and Dow membranes are some of the most promising
electrolyte membranes for polymer electrolyte fuel cells.
Although perfluorinated polymer electrolytes have satisfactory
properties for a successful fuel cell electrolyte membrane, the
major drawbacks to large-scale com. use involve high cost and low
proton-conductivities at high temps. and low humidities.
Presently, one of the most promising ways to obtain
high-performance proton-conducting polymer electrolyte membranes
is the use of hydrocarbon polymers for the polymer backbone.
Typical polymers studied included: (1) PTFE functionalized with
perfluoroalkanesulfonic acid groups, (2) sulfonated derivs. of
 α -trifluorostyrene-styrene copolymer, (3) sulfonated
poly[(4-phenoxybenzoyl)-1,4-phenylene], (4) sulfonated PEEK
(polyether-polyketone), (5) sulfonated bisphenol A-diphenylsulfone
polyether-polysulfone, and (6) sulfonated
benzo[1,2,3,4]phenanthroline-based polyimides.

IT 154100-93-3D, Poly[(4-phenoxybenzoyl)-1,4-phenylene],
sulfonated
(membranes; synthesis, electrochem. properties, uses, and
problems of proton-conducting polymer electrolyte membranes for
fuel cells)

RN 154100-93-3 HCAPLUS

CN Poly[(4-phenoxybenzoyl)-1,4-phenylene] (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CC 52-0 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 35, 38
IT 9002-84-0D, PTFE, perfluoroalkanesulfonic acid group-containing
29154-78-7D, sulfonated, derivs. 31694-16-3D, PEEK, sulfonated
154100-93-3D, Poly[(4-phenoxybenzoyl)-1,4-phenylene],
sulfonated
(membranes; synthesis, electrochem. properties, uses, and
problems of proton-conducting polymer electrolyte membranes for
fuel cells)

L62 ANSWER 13 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:355788 HCAPLUS

DOCUMENT NUMBER: 135:122843

TITLE: Bulky side-group polymers - synthesis and
characterization

AUTHOR(S): Maier, Stefanie; Drury, Anna; Davey, Andrew
P.; Byrne, Hugh J.; Blau, Werner

CORPORATE SOURCE: Materials Ireland Polymer Research Centre,
Department of Physics, Trinity College Dublin,
Dublin, Ire.

SOURCE: Synthetic Metals (2001), 119(1-3), 85-86
CODEN: SYMEDZ; ISSN: 0379-6779

PUBLISHER: Elsevier Science S.A.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A series of conjugated polymers related to poly(phenylenevinylene)
(PPV) was synthesized and characterized. These polymers contain
phenylene moieties attached to the vinylene unit with various
substitution patterns to obtain very complex systems. Some
polymers only contain phenylene units along the polymer chain
whereas for some of the derivs. naphthalene units were introduced
into the backbone. Addnl., some derivs. were prepared by varying
para and meta substitution patterns. The influences of different
structural alterations on the thermal behavior, the optical
properties and electrochem. behavior are investigated. In
general, the polymers are temperature-stable up to 350°, emit in
the blue to green region of the visible spectrum and contain
varying oxidation and reduction potentials depending on the substitution
pattern.

IT 241490-31-3P 350610-66-1P 350610-70-7P
350610-81-0P 350610-89-8P 350610-91-2P
(preparation and characterization of conjugated
poly(phenylenevinylene) derivs.)

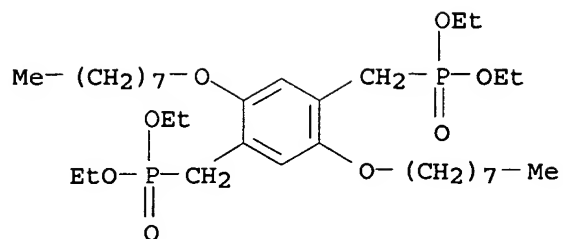
RN 241490-31-3 HCAPLUS

CN Phosphonic acid, [[2,5-bis(octyloxy)-1,4-
phenylene]bis(methylene)]bis-, tetraethyl ester, polymer with
1,4-phenylenebis[(3,4-dimethoxyphenyl)methanone] (9CI) (CA INDEX
NAME)

CM 1

CRN 176856-31-8

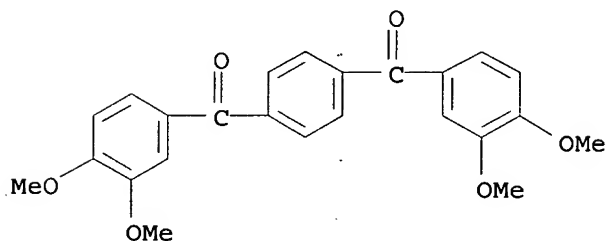
CMF C32 H60 O8 P2



CM 2

CRN 95560-64-8

CMF C24 H22 O6



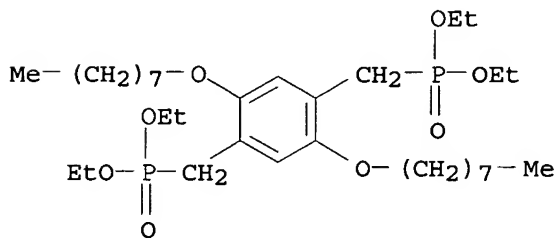
RN 350610-66-1 HCAPLUS

CN Phosphonic acid; [[2,5-bis(octyloxy)-1,4-phenylene]bis(methylene)]bis-, tetraethyl ester, polymer with 1,4-phenylenebis[(4-methoxyphenyl)methanone] (9CI) (CA INDEX NAME)

CM 1

CRN 176856-31-8

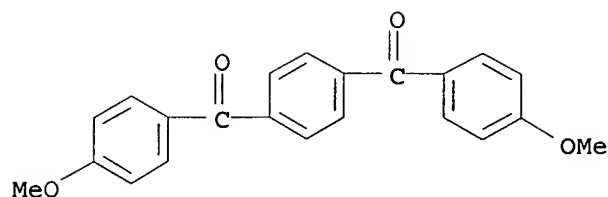
CMF C32 H60 O8 P2



CM 2

CRN 15517-45-0

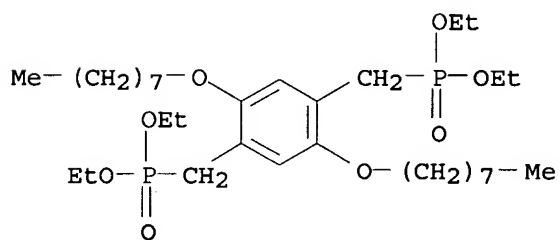
CMF C22 H18 O4



RN 350610-70-7 HCAPLUS
 CN Phosphonic acid, [[2,5-bis(octyloxy)-1,4-phenylene]bis(methylene)]bis-, tetraethyl ester, polymer with 1,3-phenylenebis[(4-methoxyphenyl)methanone] (9CI) (CA INDEX NAME)

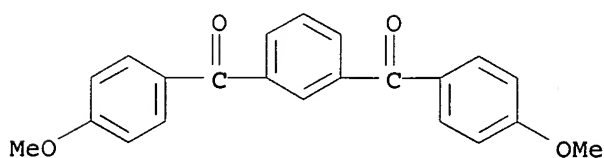
CM 1

CRN 176856-31-8
 CMF C32 H60 O8 P2



CM 2

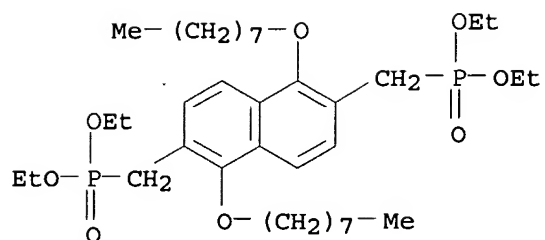
CRN 7477-29-4
 CMF C22 H18 O4



RN 350610-81-0 HCAPLUS
 CN Phosphonic acid, [[1,5-bis(octyloxy)-2,6-naphthalenediyl]bis(methylene)]bis-, tetraethyl ester, polymer with 1,3-phenylenebis[(3,4-dimethoxyphenyl)methanone] (9CI) (CA INDEX NAME)

CM 1

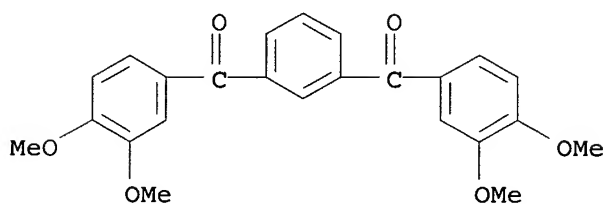
CRN 350610-74-1
 CMF C36 H62 O8 P2



CM 2

CRN 98274-43-2

CMF C24 H22 O6



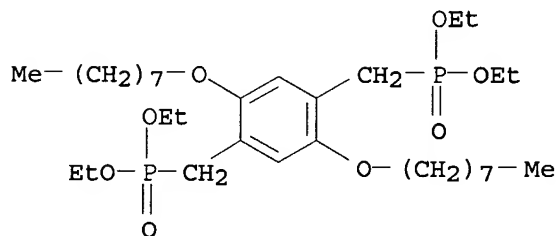
RN 350610-89-8 HCAPLUS

CN Phosphonic acid, [[2,5-bis(octyloxy)-1,4-phenylene]bis(methylene)]bis-, tetraethyl ester, polymer with 1,3-phenylenebis[(3,4-dimethoxyphenyl)methanone] (9CI) (CA INDEX NAME)

CM 1

CRN 176856-31-8

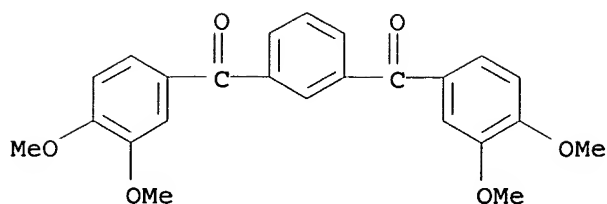
CMF C32 H60 O8 P2



CM 2

CRN 98274-43-2

CMF C24 H22 O6



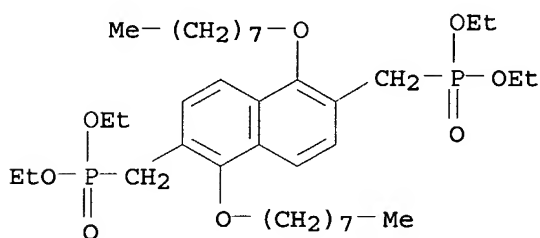
RN 350610-91-2 HCAPLUS

CN Phosphonic acid, [[1,5-bis(octyloxy)-2,6-naphthalenediyl]bis(methylene)]bis-, tetraethyl ester, polymer with 1,3-phenylenebis[(4-methoxyphenyl)methanone] (9CI) (CA INDEX NAME)

CM 1

CRN 350610-74-1

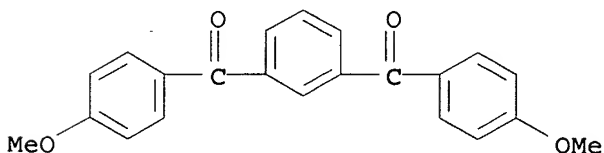
CMF C36 H62 O8 P2



CM 2

CRN 7477-29-4

CMF C22 H18 O4



CC 35-5 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 36, 73, 76

IT	241490-29-9P	241490-30-2P	241490-31-3P	241490-32-4P
	241490-33-5P	241490-34-6P	350610-66-1P	350610-67-2P
	350610-68-3P	350610-69-4P	350610-70-7P	350610-71-8P
	350610-72-9P	350610-73-0P	350610-75-2P	350610-76-3P
	350610-77-4P	350610-78-5P	350610-79-6P	350610-80-9P
	350610-81-0P	350610-82-1P	350610-83-2P	350610-84-3P
	350610-85-4P	350610-86-5P	350610-87-6P	350610-88-7P
	350610-89-8P	350610-90-1P	350610-91-2P	
	350610-92-3P			

(preparation and characterization of conjugated

poly(phenylenevinylene) derivs.)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L62 ANSWER 14 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1999:459142 HCAPLUS

DOCUMENT NUMBER: 131:200150

TITLE: Mono- and polycyclic aromatic polymers -
synthesis and propertiesAUTHOR(S): Maier, S.; Davey, A. P.; Drury, A.; Byrne, H.
J.; Blau, W.

CORPORATE SOURCE: Dep. Physics, Univ. Dublin, Dublin, 2, Ire.

SOURCE: Synthetic Metals (1999), 101(1-3), 31-32

CODEN: SYMEDZ; ISSN: 0379-6779

PUBLISHER: Elsevier Science S.A.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A series of new mono- and polycyclic vinylene copolymers was
synthesized via polycondensation of substituted vinylphenols and
2,6-substituted and m-phenyl-substituted naphthalene monomers
using KOtBu as catalyst and toluene as solvent, under Ar. The
polymers obtained have color that varies from pale to very bright
yellow, are soluble in toluene, chloroform, and trichlorobenzene.
The emission maximum of the naphthalene polymers is slightly
blue-shifted vs. that of poly(p-phenylene vinylene), as predicted
by Hueckel calcns. of the band gap. Substitution at the meta
position causes a shift to shorter wavelength vs. the
para-substituted polymers, due to interruption of the
 π -conjugation.

IT 241490-24-4P 241490-31-3P

(preparation of mono- and polycyclic aromatic polyphenylenevinylenes
and substituent effects on band gap and conjugation length)

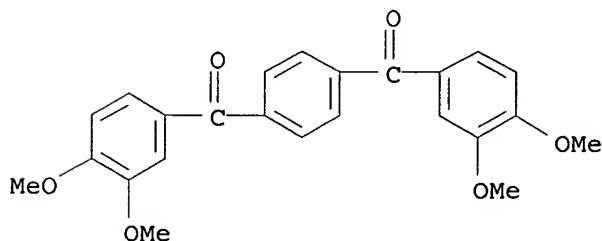
RN 241490-24-4 HCAPLUS

CN Phosphonic acid, [2,6-naphthalenediylbis(methylene)]bis-,
tetraethyl ester, polymer with 1,4-phenylenebis[(3,4-
dimethoxyphenyl)methanone] (9CI) (CA INDEX NAME)

CM 1

CRN 95560-64-8

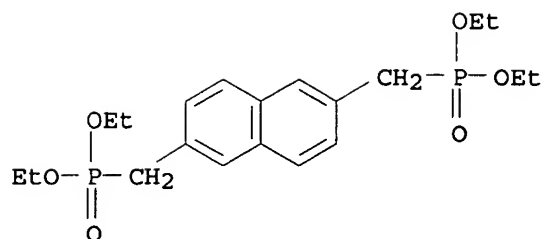
CMF C24 H22 O6



CM 2

CRN 23973-60-6

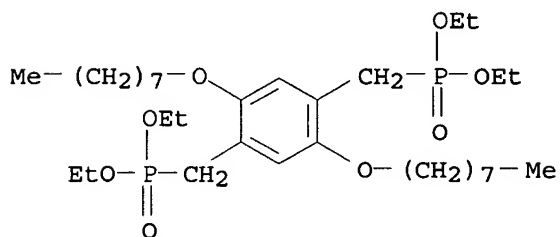
CMF C20 H30 O6 P2



RN 241490-31-3 HCAPLUS
 CN Phosphonic acid, [[2,5-bis(octyloxy)-1,4-phenylene]bis(methylene)]bis-, tetraethyl ester, polymer with 1,4-phenylenebis[(3,4-dimethoxyphenyl)methanone] (9CI) (CA INDEX NAME)

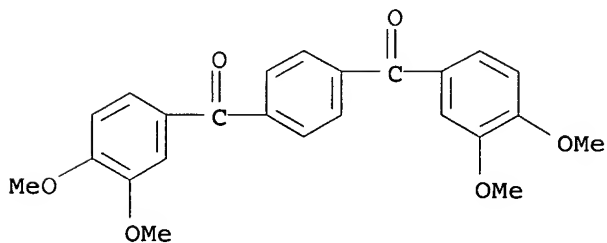
CM 1

CRN 176856-31-8
 CMF C32 H60 O8 P2



CM 2

CRN 95560-64-8
 CMF C24 H22 O6



CC 35-5 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 36, 76

IT 241490-22-2P 241490-23-3P 241490-24-4P 241490-25-5P
 241490-27-7P 241490-28-8P 241490-29-9P 241490-30-2P
 241490-31-3P 241490-32-4P 241490-33-5P 241490-34-6P
 (preparation of mono- and polycyclic aromatic polyphenylenevinylenes)

and substituent effects on band gap and conjugation length)
REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L62 ANSWER 15 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1998:325834 HCAPLUS

DOCUMENT NUMBER: 129:5053

TITLE: Molecular mobility of substituted
poly(p-phenylenes) characterized by a range of
polymer relaxation techniques

AUTHOR(S): Simon, G. P.; Ardi, M. Safari; Goodwin, A. A.;
Zipper, M. D.; Andrews, S. R.; Shinton, S.;
Williams, G.; Galop, M.; Trimmer, M.

CORPORATE SOURCE: Materials Engineering, Monash University,
Clayton, 3168, Australia

SOURCE: Journal of Polymer Science, Part B: Polymer
Physics (1998), 36(9), 1465-1481
CODEN: JPBPEM; ISSN: 0887-6266

PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The free volume and related mobility properties of substituted
poly(p-phenylene) polymers are examined. The techniques used range
from positron annihilation, dielec. relaxation, and dynamic mech.
spectroscopy to thermally stimulated currents. Fractional free
volume is determined for the samples with different substituted side
groups and related to the glass transition temperature. Bulkier groups
lead to a greater fractional free volume and lower glass transition
temps. Comparison of mol. relaxation times using the different
characterization techniques demonstrates that there is strong
coupling between motion of the main chain and the side groups, on
which the dipoles reside. Intermol. coupling between the main
chains at the primary relaxation is shown in this work to be
related to the nature of the side chains and resultant free volume,
as are the temperature locations of local, secondary relaxations. A
qual. model describing the effect of regiochem. on the motions and
packing of these materials is also proposed.

IT 154100-93-3, PX 2000

(mol. mobility of substituted poly(phenylenes) determined by polymer
relaxation techniques)

RN 154100-93-3 HCAPLUS

CN Poly[(4-phenoxybenzoyl)-1,4-phenylene] (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CC 36-3 (Physical Properties of Synthetic High Polymers)

IT 150385-13-0, PX 1000 154100-93-3, PX 2000

(mol. mobility of substituted poly(phenylenes) determined by polymer
relaxation techniques)

REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L62 ANSWER 16 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1998:134989 HCAPLUS

DOCUMENT NUMBER: 128:180737

TITLE: Proton-conducting polymers derived from
poly(ether-etherketone) and
poly(4-phenoxybenzoyl-1,4-phenylene)

AUTHOR(S): Kobayashi, Takeshi; Rikukawa, Masahiro; Sanui,

CORPORATE SOURCE: Kohei; Ogata, Naoya
Chiyoda-ku, 7-1 Kioi-cho, Department of
Chemistry, Sophia University, Tokyo, 102,
Japan

SOURCE: Solid State Ionics (1998), 106(3,4), 219-225
CODEN: SSIOD3; ISSN: 0167-2738

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Poly(oxy-1,4-phenylene-oxy-1,4-phenylene-carbonyl-1,4-phenylene)
(PEEK) and poly(4-phenoxybenzoyl-1,4-phenylene) (Poly-X 2000)
(PPBP), were sulfonated with sulfuric acid by incorporating
sulfonic acid moieties in order to convert these polymers to
proton-conducting polymers. The sulfonated polymers containing 65 mol
sulfonic acid showed a high proton-conductivity of 10^{-2} - 10^{-4} S cm⁻¹ at
room temperature Sulfonated PPBP showed a much higher and more stable
proton conductivity than sulfonated PEEK, which is in agreement with the
strong water absorption of the former compound The study is of
interest with respect to utilizing polymers in fuel cells.

IT 154100-93-3DP, Poly-X 2000, sulfonated
(proton-conducting polymers derived from poly(ether-
etherketone) and poly(4-phenoxybenzoyl-1,4-phenylene))

RN 154100-93-3 HCAPLUS

CN Poly[(4-phenoxybenzoyl)-1,4-phenylene] (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CC 35-8 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 36, 52

IT 31694-16-3DP, PEEK, sulfonated 154100-93-3DP, Poly-X
2000, sulfonated

(proton-conducting polymers derived from poly(ether-
etherketone) and poly(4-phenoxybenzoyl-1,4-phenylene))

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L62 ANSWER 17 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1996:551111 HCAPLUS

DOCUMENT NUMBER: 125:196792

TITLE: Radiation-curable resin compositions and
agents for assisting their curing in the
presence of oxygen

INVENTOR(S): Hayashi, Masanao; Kidokoro, Naoto

PATENT ASSIGNEE(S): Dainippon Ink & Chemicals, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 21 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 08151420	A2	19960611	JP 1994-296666	1994 1130

PRIORITY APPLN. INFO.: JP 1994-296666

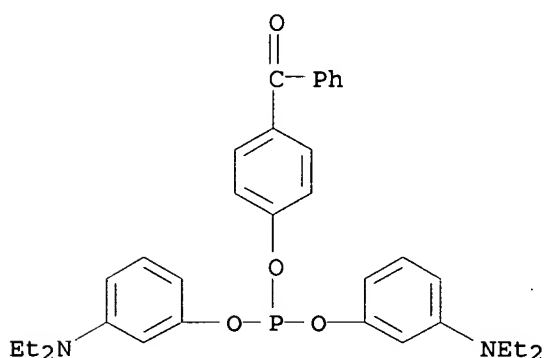
1994
1130

AB The title resin compns. curable under ambient atmospheric, useful for coatings, etc., contain radical-polymerizable monomers and phosphite esters bearing tertiary-amine groups as curing enhancers. Thus, curing a mixture of Kayarad R684 (acrylic compound) 98, Irgacure 184 2 and tris[2-(dimethylamino)ethyl] phosphite (I) by UV light gave a cured product harder than that cured similarly in the presence of di-Ph isodecyl phosphite in place of I.

IT 180910-78-5
(curing promoters; for radiation-curable resin compns. in the presence of oxygen)

RN 180910-78-5 HCAPLUS

CN Phosphorous acid, 4-benzoylphenyl bis[3-(diethylamino)phenyl] ester (9CI) (CA INDEX NAME)



IC ICM C08F299-00
ICS C08F002-44; C08F002-48

CC 35-8 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 42

IT 13560-63-9 39670-03-6, Tris[2-(dimethylamino)ethyl] phosphite
67293-66-7 180873-59-0 180910-76-3 180910-77-4
180910-78-5 180910-79-6
(curing promoters; for radiation-curable resin compns. in the presence of oxygen)

L62 ANSWER 18 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1996:53086 HCAPLUS

DOCUMENT NUMBER: 124:118075

TITLE: Preparation of Polyimides Utilizing the Diels-Alder Reaction. 1,4-[N,N'-Bis(butadienyl-2-methyl)diamido]-2,3,5,6-tetramethylbenzenes with Bismaleimides

AUTHOR(S): Smith, Joseph G., Jr.; Sun, Fred; Ottenbrite, Raphael M.

CORPORATE SOURCE: Department of Chemistry, Virginia Commonwealth University, Richmond, VA, 23284-2006, USA

SOURCE: Macromolecules (1996), 29(4), 1123-30
CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Bis(amide-1,3-diene) monomers were prepared from 1,4-[N,N'-bis(butadienyl-2-methyl)diamino]-2,3,5,6-tetramethylbenzene and several alkyl and aryl acid chlorides. The

corresponding polyamide-imides were prepared by the Diels-Alder reaction involving these bis(amide-1,3-diene)s with bismaleimides. The polymers exhibited inherent viscosities of 0.21-0.81 dL/g and glass transition temps. 202-269°. Moderate thermal stability was observed by dynamic thermogravimetric anal., with 10% weight loss occurring between 318 and 350° in He. The polymers were soluble in N,N-dimethylacetamide and chlorinated solvents. Creasable films were obtained by solution casting from chloroform. The chemical and phys. properties of the monomers and polymers are discussed.

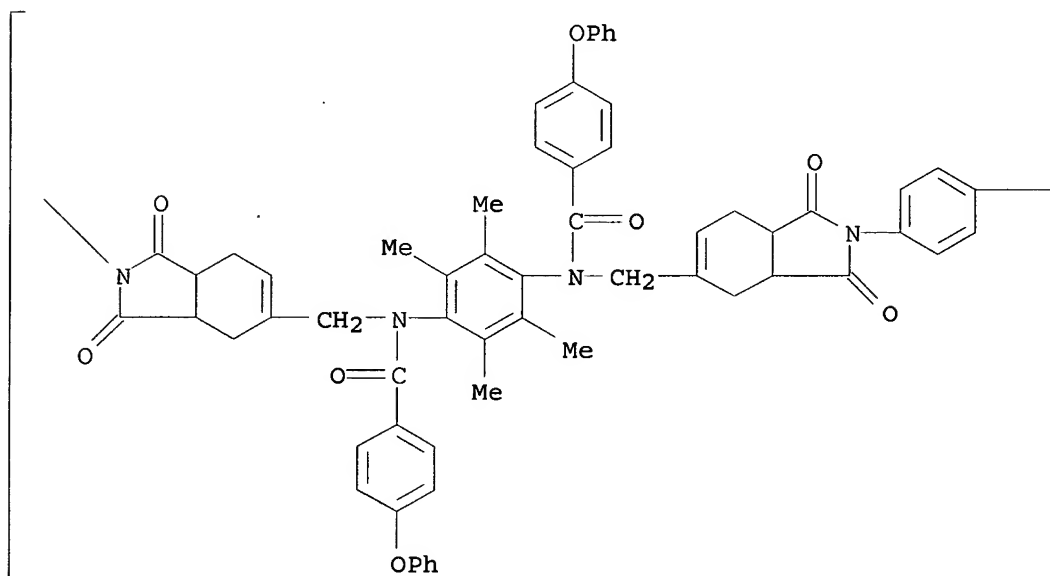
IT 173179-37-8P

(preparation of polyimides by Diels-Alder reaction of [bis(butadienylmethyl)diamido]tetramethylbenzenes with bismaleimides)

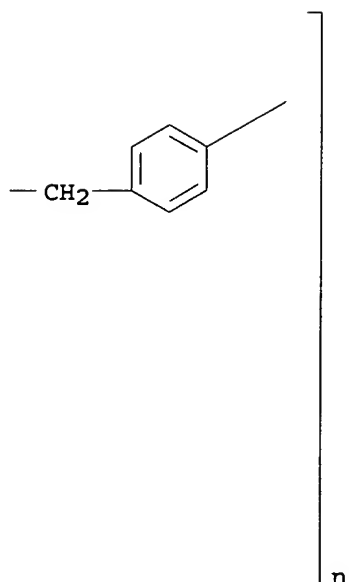
RN 173179-37-8 HCAPLUS

CN Poly[(1,3,3a,4,7,7a-hexahydro-1,3-dioxo-2H-isoindole-2,5-diyl)methylene[(4-phenoxybenzoyl)imino](2,3,5,6-tetramethyl-1,4-phenylene)[(4-phenoxybenzoyl)imino]methylene(1,3,3a,4,7,7a-hexahydro-1,3-dioxo-2H-isoindole-5,2-diyl)-1,4-phenylenemethylene-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



CC 35-3 (Chemistry of Synthetic High Polymers)
IT 124350-54-5P 124350-57-8P 173179-17-4P 173179-18-5P
173179-19-6P 173179-20-9P 173179-22-1P 173179-23-2P
173179-24-3P 173179-25-4P 173179-26-5P 173179-27-6P
173179-28-7P 173179-30-1P 173179-31-2P 173179-32-3P
173179-33-4P 173179-34-5P 173179-36-7P 173179-37-8P
173179-39-0P 173179-40-3P

(preparation of polyimides by Diels-Alder reaction of
[bis(butadienylmethyl)diamido]tetramethylbenzenes with
bismaleimides)

L62 ANSWER 19 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1995:397850 HCAPLUS

DOCUMENT NUMBER: 122:134466

TITLE: Viscoelastic and Dielectric Relaxation

Behavior of Substituted Poly(p-phenylenes)

AUTHOR(S): Connolly, Michael; Karasz, Frank; Trimmer, Mark

CORPORATE SOURCE: Department of Polymer Science Engineering,
University of Massachusetts, Amherst, MA,
01003, USA

SOURCE: Macromolecules (1995), 28(6), 1872-81

CODEN: MAMOBX; ISSN: 0024-9297

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The thermal, dynamic mech., and dielec. relaxation behavior of poly(p-phenylenes) substituted with benzoyl and 4-phenoxybenzoyl groups and of a copolymer of benzoyl-1,4-phenylene and 1,3-phenylene were investigated. These amorphous materials were found to have flexural moduli higher than any other reported unoriented thermoplastic. Benzoyl-substituted poly(p-phenylene) which possesses the greatest rigid-rod character also displayed the highest modulus. The temperature dependence of viscoelastic and dielec. relaxation times were well described by the

Williams-Landel-Ferry and Vogel-Fulcher equations, resp. The temperature sensitivity or "fragility" of viscoelastic shift factors aT and apparent dielec. relaxation times τ^* was greatest for the copolymer. The glass transition temperature of these polymers varied as a function of the total free volume. The polymer containing the 4-phenoxybenzoyl side group exhibited the lowest T_g due to internal plasticization, but the highest Vogel energy attributable to the large intramol. bond rotational barrier associated with the bulky pendant group. The shape of frequency plane dielec. relaxation spectra of the substituted polyphenylenes could be accurately fitted to the Kolrausch-Williams-Watts (KWW) correlation function. The KWW stretched exponential term β displayed a very weak dependence on mol. structure and remained constant within exptl. error for each material over the temperature range studied. Since β should be proportional to the degree of intermol. coupling, the structural variation in "fragility", albeit small, of the substituted polyphenylenes may not be fully described by the coupling model for relaxation. Assuming the macroscopic expansion coefficient is proportional to the free volume expansion coefficient, the temperature dependence of τ^* and aT may be explained more simply from free volume considerations. The 4-phenoxybenzoyl-substituted polymer displayed the highest expansion coefficient and largest total free volume, but the benzoyl-1,4-phenylene/1,3-phenylene copolymer exhibited the largest relative change in free volume with temperature, which explained the greater "fragility" of the copolymer compared to either homopolymer.

IT 154100-93-3, Poly[(4-phenoxybenzoyl)-1,4-phenylene]
(viscoelastic and dielec. relaxation behavior of substituted
poly(p-phenylenes))
RN 154100-93-3 HCAPLUS
CN Poly[(4-phenoxybenzoyl)-1,4-phenylene] (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CC 36-5 (Physical Properties of Synthetic High Polymers)
IT 150347-09-4, 2,5-Dichlorobenzophenone homopolymer 150385-13-0,
2,5-Dichlorobenzophenone homopolymer, SRU 151173-26-1,
2,5-Dichloro-4'-phenoxybenzophenone homopolymer 153847-53-1,
1,3-Dichlorobenzene-2,5-Dichlorobenzophenone copolymer
154100-93-3, Poly[(4-phenoxybenzoyl)-1,4-phenylene]
(viscoelastic and dielec. relaxation behavior of substituted
poly(p-phenylenes))

L62 ANSWER 20 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1995:293115 HCAPLUS

DOCUMENT NUMBER: 122:82850

TITLE: Comparison of the thermal and light
stabilizing action of novel aromatic
phosphites substituted with
2-hydroxybenzophenone and hindered piperidine
moieties in polyolefins

AUTHOR(S): Allen, Norman S.; Ortiz, Ricardo Acosta;
Anderson, Graeme J.; Sasaki, Manji

CORPORATE SOURCE: Chem. Dep., Manchester Metropolitan Univ.,
Manchester, M1 5GD, UK

SOURCE: Polymer Degradation and Stability (1994),
46(1), 75-84

CODEN: PDSTDW; ISSN: 0141-3910

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE:

English

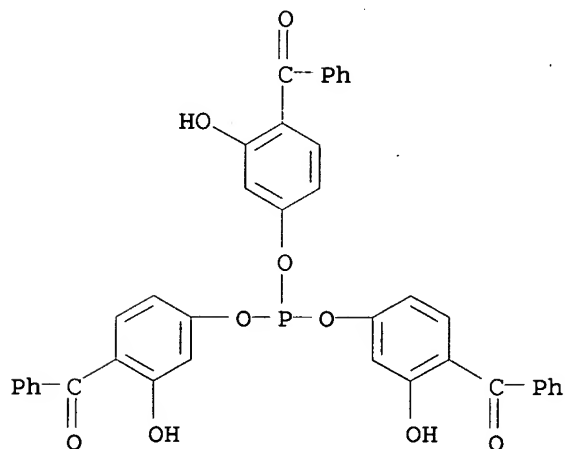
AB Three novel phosphite stabilizers have been synthesized and characterized and their thermal and photochem. effectiveness examined in polyethylene and polypropylene films. Two structures are based on a bis-hindered phenolic moiety coupled to a 2-hydroxybenzophenone and a 4-aminotetramethylpiperidine chromophore. The third is a tris-2-hydroxybenzophenone based phosphite. Thermal oven aging and thermal anal. on the polymer films showed that the hindered piperidine phosphite is an effective primary and secondary **antioxidant** compared with the 2-hydroxybenzophenone derivs. These results are consistent with its ability to inhibit the formation of hydroperoxides during thermal aging. The 4-aminopiperidine phosphite compound is also an effective light stabilizer for polypropylene. The 2-hydroxybenzophenone derivative was ineffective as a light stabilizer in all cases and antagonized the effectiveness of a com. polymeric hindered piperidine stabilizer (Chimassorb 944). The tris-2-hydroxybenzophenone phosphite compound, however, was more effective as a light stabilizer in polypropylene than in polyethylene. Both mass spectrometry and thermal anal. indicated initial fragmentation resulting in the loss of the 2-hydroxybenzophenone and 4-aminopiperidine stabilizer moieties from the P atom. The importance of combining different stabilizer moieties with the same structure in terms of performance is discussed.

IT 15855-95-5P

(preparation and stabilizing action of novel aromatic phosphites in polyolefins)

RN 15855-95-5 HCAPLUS

CN Methanone, [phosphinidynetris[oxy(2-hydroxy-4,1-phenylene)]]tris[phenyl- (9CI) (CA INDEX NAME)

CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 29

IT 15855-95-5P

(preparation and stabilizing action of novel aromatic phosphites in polyolefins)

L62 ANSWER 21 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN

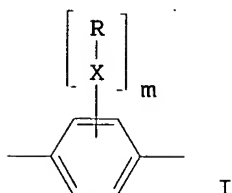
ACCESSION NUMBER: 1994:657102 HCAPLUS

DOCUMENT NUMBER: 121:257102

TITLE: Preparation of polyphenyls for injection moldings with high modulus and low mechanical anisotropy
 INVENTOR(S): Kimura, Masatoshi; Tokunaga, Tomohiko; Kidai, Osamu
 PATENT ASSIGNEE(S): Mitsubishi Chemical Industries Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
JP 06157726	A2	19940607	JP 1992-310222	1992 1119
PRIORITY APPLN. INFO.:			JP 1992-310222	1992 1119

GI



AB The title polyphenyls contain mainly units I [R = monovalent radical containing 1-3 (halo-, alkyl-, or alkoxy-substituted) C6-10 aromatic groups joined by direct bonds and/or O, CO, CO₂, CONH, N:N, CH:N, and/or S groups; X = direct bond, O, CO, CO₂ CONH, N:N, CH:N, S; m = 1-4]. A dispersion of 2,5-dichloro-4'-phenoxybenzophenone 3950, NiCl₂ 50, Ph₃P 750, NaI 150, powdered Zn 1200, and N-methyl-2-pyrrolidone 15,000 parts was heated 2 h at 95° to prepare a resin which was injection molded at 290° to give 1-mm moldings showing flexural modulus 15.5 GPa, flexural strength 195 MPa, and flexural strain 1.3% (ASTM D 790).

IT 154100-93-3P, Poly[(4-phenoxybenzoyl)-1,4-phenylene]
 (preparation and use for moldings with high modulus and low mech. anisotropy)

RN 154100-93-3 HCAPLUS

CN Poly[(4-phenoxybenzoyl)-1,4-phenylene] (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IC ICM C08G061-10
 ICS B29C045-00; C08J005-00
 ICI C08L065-00

CC 37-5 (Plastics Manufacture and Processing)
 Section cross-reference(s): 35, 38
 IT 150385-13-0P, Poly(benzoyl-1,4-phenylene) 154100-93-3P,
 Poly[(4-phenoxybenzoyl)-1,4-phenylene] 158529-92-1P
 158529-93-2P
 (preparation and use for moldings with high modulus and low mech.
 anisotropy)

L62 ANSWER 22 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1994:469569 HCAPLUS
 DOCUMENT NUMBER: 121:69569
 TITLE: Electrophotographic photoreceptor sheet for
 lithographic platemaking
 INVENTOR(S): Kato, Eiichi
 PATENT ASSIGNEE(S): Fuji Photo Film Co Ltd, Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 74 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 05188664	A2	19930730	JP 1992-20696	1992 0110

PRIORITY APPLN. INFO.: JP 1992-20696
 1992
 0110

AB In the title photoreceptor sheet comprising, on an elec.
 conductive support, ≥ 1 photoconductive layers and a
 surface layer, the surface layer contains nonaq. solvent-dispersed
 resin particles (L) and the photoconductive layer contains the
 binder resin (A) claimed below. L is obtained by dispersion
 polymerizing in the presence of a soluble dispersion-stabilizing resin,
 ≥ 1 monofunctional monomers containing ≥ 1 functional
 groups yielding CO₂H on decomposition, and aminofunctional monomer
 containing substituents containing Si and(or) F. Binder resin (A) (weight
 average mol. weight $1 \times 10^3 - 2 \times 10^4$) is a resin comprising the structure
 repeating unit, CHa1Ca2(CO₂R) [a1, aa = H, halo, CN, hydrocarbyl;
 R = hydrocarbyl], 30% with 1 end of the polymer chain terminated
 by ≥ 1 polar groups selected from PO₃H₂, SO₃H, CO₂H,
 P(O)(OH)R [R = hydrocarbyl or oxyhydrocarbyl], and cyclic
 anhydride. Durable lithog. plates giving superior printed copies
 even under severe operational conditions can be obtained.

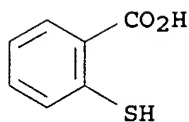
IT 146716-92-9P, 2-Benzoylphenyl methacrylate-2-
 phosphonoethyl methacrylate telomer with thiosalicylic acid
 (preparation of, as binder resin)

RN 146716-92-9 HCAPLUS

CN Benzoic acid, 2-mercapto-, telomer with 2-benzoylphenyl
 2-methyl-2-propenoate and 2-(phosphonoxy)ethyl
 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 147-93-3
 CMF C7 H6 O2 S

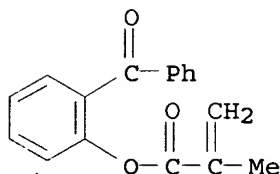


CM 2

CRN 146716-91-8
 CMF (C17 H14 O3 . C6 H11 O6 P)x
 CCI PMS

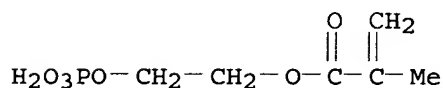
CM 3

CRN 59626-78-7
 CMF C17 H14 O3



CM 4

CRN 24599-21-1
 CMF C6 H11 O6 P



- IC ICM G03G013-28
 ICS G03G005-05; G03G005-06; G03G005-147
- CC 74-6 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
 Section cross-reference(s): 35
- IT 9011-14-7DP, Methyl methacrylate homopolymer, carboxylated
 31547-85-ODP, 1-Naphthyl methacrylate homopolymer,
 carboxy-terminated 128338-04-5P 128338-05-6P, Benzyl
 methacrylate telomer with thiosalicylic acid 138059-23-1P,
 2-Naphthylmethyl methacrylate telomer with thiosalicylic acid
 138059-26-4P, 2-Cyanophenyl methacrylate-ethyl methacrylate
 telomer with thiosalicylic acid 138059-27-5P, 2-Phenoxyethyl
 methacrylate telomer with thiosalicylic acid 138059-28-6P
 138059-29-7P 138059-30-0P 138059-31-1P 138059-32-2P
 138059-33-3P 138059-34-4P 138059-35-5P 138059-36-6P
 139357-81-6P 139989-86-9P, Acrylic acid-benzyl methacrylate
 telomer with thiosalicylic acid 139989-94-9P, Acrylic
 acid-2-chlorophenyl methacrylate telomer with thiosalicylic acid
 142199-53-9P, Methacrylic acid-phenyl methacrylate telomer with

thiosalicylic acid 146115-83-5P, Ethyl methacrylate-4-vinylbenzoic acid telomer with thiosalicylic acid 146716-90-7P
 146716-92-9P, 2-Benzoylphenyl methacrylate-2-phosphonoethyl methacrylate telomer with thiosalicylic acid
 146716-99-6P, 2-Carboxyethyl acrylate-ethyl methacrylate telomer
 with thiosalicylic acid 146717-07-9P, 2,6-Dibromophenyl
 methacrylate-3-sulfopropyl methacrylate telomer with thiosalicylic
 acid 149234-62-8P, Benzyl methacrylate telomer with thioglycolic
 acid 149265-85-0P, Acrylic acid-2-chloro-6-methylphenyl
 methacrylate telomer with thiosalicylic acid
 (preparation of, as binder resin)

L62 ANSWER 23 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1994:446534 HCAPLUS

DOCUMENT NUMBER: 121:46534

TITLE: Electrophotographic plate for
 electrophotographic lithographic plates

INVENTOR(S): Kato, Eiichi; Kasai, Seishi

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: PCT Int. Appl., 213 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9215048	A1	19920903	WO 1992-JP188	1992 0221
W: US				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, MC, NL, SE				
JP 04268564	A2	19920924	JP 1991-78711	1991 0222
JP 04291265	A2	19921015	JP 1991-78175	1991 0319
JP 04304462	A2	19921027	JP 1991-94886	1991 0402
JP 04355457	A2	19921209	JP 1991-156246	1991 0531
EP 535236	A1	19930407	EP 1992-905099	1992 0221
EP 535236	B1	19961218		
R: DE, GB				
US 5342716	A	19940830	US 1992-946320	1992 1022
PRIORITY APPLN. INFO.:			JP 1991-78711	A
			JP 1991-78175	A
				1991

0319

JP 1991-94886 A
1991
0402

JP 1991-156246 A
1991
0531

WO 1992-JP188 W
1992
0221

AB The title electrophotog. plate utilizing a photoconductor layer containing photoconductive ZnO, a spectral sensitizer dye, and a binder resin, the binder resin contains ≥ 1 resins (A) (weight average mol. weight $1 + 10^3 - 2 + 10^4$) containing polymer component [CHala2(CO2R3)] [a1, a2 = H, halo, CN, hydrocarbon moiety; R3 = hydrocarbon moiety] $\geq 30\%$ and a polymer component containing ≥ 1 polar groups selected from PO3H2, SO3H, CO2H, P(O)(OH)R1 (R1 = hydrocarbon or oxyhydrocarbon moiety), and a cyclic acid anhydride moiety 0.5-15%. In addition, the photoconductor layer contains nonaq. medium dispersed resin fine particles (L) having particle size less than that of the maximum diameter of the photoconductive ZnO particles utilized above. L is obtained by copolymerizing a monofunctional monomer possessing ≥ 1 functional groups capable of decomposing to form CO2H with another monofunctional monomer(s) in the precursor of a nonaq. solvent-soluble dispersion-stabilizing resin with structure repeating units containing F- and/or Si-containing substituents. The electrophotog. plate gives lithog. printing plates giving superior printed copies even under severe ambient conditions and having good durability.

IT 146716-92-9P

(preparation of, as binder resin)

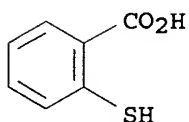
RN 146716-92-9 HCAPLUS

CN Benzoic acid, 2-mercapto-, telomer with 2-benzoylphenyl
2-methyl-2-propenoate and 2-(phosphonooxy)ethyl
2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 147-93-3

CMF C7 H6 O2 S



CM 2

CRN 146716-91-8

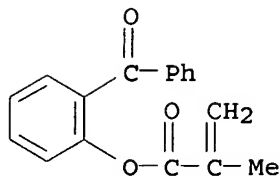
CMF (C17 H14 O3 . C6 H11 O6 P)x

CCI PMS

CM 3

CRN 59626-78-7

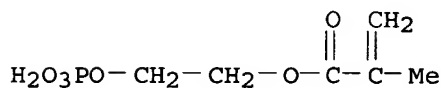
CMF C17 H14 O3



CM 4

CRN 24599-21-1

CMF C6 H11 O6 P



IC ICM G03G005-05
 CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
 Section cross-reference(s): 35
 IT 80-62-6DP, Methylmethacrylate, carboxylation product
 19102-44-4DP, 1-Naphthylmethacrylate, carboxy-terminated
 30475-53-7P 65697-21-4P 65697-22-5P, Acrylic acid-benzyl methacrylate copolymer 126969-78-6P 127909-38-0P
 128338-04-5P 128338-05-6P 130094-33-6P 130952-79-3P
 131808-63-4P 135740-18-0P 135740-30-6P 135740-31-7P
 135740-32-8P 135740-33-9P 135740-35-1P 135740-37-3P
 135740-39-5P 135740-43-1P 135740-44-2P 135740-46-4P
 135740-47-5P 135770-63-7P 135820-62-1P 138059-19-5P
 138059-20-8P 138059-23-1P 138059-26-4P 138059-27-5P
 138059-28-6P 138059-30-0P 138059-31-1P 138059-33-3P
 138059-35-5P 138059-36-6P 139357-81-6P 139645-92-4P
 139989-86-9P 145169-24-0P 145807-38-1P 146115-83-5P
 146188-26-3DP, carboxy-terminated, ester with 2-hydroxyethylmethacrylate 146716-90-7P 146716-92-9P
 146716-99-6P 146717-07-9P 146817-57-4P 146817-58-5P
 146817-61-0P 146817-67-6P 147524-36-5P 149072-15-1P
 149072-16-2P 149072-17-3P 149072-18-4P 149072-19-5P
 149093-39-0P 149093-41-4P 149093-42-5P 149124-85-6P
 (preparation of, as binder resin)

L62 ANSWER 24 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1994:271490 HCAPLUS
 DOCUMENT NUMBER: 120:271490
 TITLE: Solubilized rigid-rod polyphenyls
 INVENTOR(S): Marrocco, Matthew L., III; Gagne, Robert R.; Trimmer, Mark Steven
 PATENT ASSIGNEE(S): Maxdem Inc., USA
 SOURCE: PCT Int. Appl., 102 pp.
 CODEN: PIXXD2

DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 4
 PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
WO 9318076	A1	19930916	WO 1993-US1732	1993 0224
W: CA, JP RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
EP 629217	A1	19941221	EP 1993-907055	1993 0224
EP 629217	B1	20030507		
R: DE, FR, GB, IT, NL				
JP 07504456	T2	19950518	JP 1993-515768	1993 0224
JP 3245166	B2	20020107		
EP 1352731	A2	20031015	EP 2003-10202	1993 0224
R: DE, FR, GB, IT, NL				
US 5646231	A	19970708	US 1995-369162	1995 0105
US 5646232	A	19970708	US 1995-456396	1995 0601
US 5721335	A	19980224	US 1995-460548	1995 0602
US 5756581	A	19980526	US 1995-459359	1995 0602
US 5760131	A	19980602	US 1995-458787	1995 0602
US 5789521	A	19980804	US 1995-459724	1995 0602
US 6087467	A	20000711	US 1998-204439	1998 1202
PRIORITY APPLN. INFO.:			US 1992-847321	A 1992 0306
			US 1988-157451	B2 1988 0217
			US 1989-397732	A2 1989 0823

EP 1993-907055 A3 1993
0224

WO 1993-US1732 W 1993
0224

US 1995-369162 A3 1995
0105

US 1995-460548 A3 1995
0602

AB The title polymers have repeating units (C6R1R2R3R4)_n [R1-4 = H or a solubilizing side group, ≥1 of 100 monomer units contains the side group; n ≥25 (number-average)] and are typically prepared by reductive coupling polymerization of dichlorobenzoyl-containing compds. with Zn in the presence of Ni-phosphine catalysts. The polymers are useful as fibers, coatings, and semipermeable membranes, , in printed circuits, and in abrasion-resistant polymer blends (i.e. mol. composites).

IT 154100-93-3P, Poly[(4-phenoxybenzoyl)-1,4-phenylene]
(preparation of, rigid-rod)

RN 154100-93-3 HCAPLUS

CN Poly[(4-phenoxybenzoyl)-1,4-phenylene] (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IC ICM C08G061-00

ICS C08G061-10; C08G002-00

CC 35-5 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 40

IT 150347-09-4P 150385-13-0P, 2,5-Dichlorobenzophenone homopolymer,
sru 150385-14-1P, Poly[(4-methylbenzoyl)-1,4-phenylene]
151173-26-1P, 2,5-Dichloro-4'-phenoxybenzophenone homopolymer
153847-44-0P 153847-45-1P 153847-46-2P 153847-48-4P
153847-50-8P 153847-52-0P 153847-53-1P 153847-54-2P
154100-89-7P 154100-91-1P 154100-92-2P 154100-93-3P,
Poly[(4-phenoxybenzoyl)-1,4-phenylene] 154100-94-4P
(preparation of, rigid-rod)

L62 ANSWER 25 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1994:218882 HCAPLUS

DOCUMENT NUMBER: 120:218882

TITLE: Solubilized rigid-rod polyphenyls

INVENTOR(S): Marrocco, Matthew L., III; Gagne, Robert R.;
Trimmer, Mark Steven; Wang, Ying

PATENT ASSIGNEE(S): Maxdem Inc., USA

SOURCE: PCT Int. Appl., 88 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 4

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 9318077 A1 19930916 WO 1993-US1733 1993
0224

W: CA, JP

RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL,
PT, SE

US 5654392 A 19970805 US 1995-369161 1995
0105

US 5731400 A 19980324 US 1995-459791 1995
0602

PRIORITY APPLN. INFO.: US 1992-847351 A 1992
0306

US 1988-157451 B2 1988
0217

US 1989-397732 A2 1989
0823

US 1995-369161 A3 1995
0105

AB The title polymers have repeating units (C₆R₁H₃)_n [R₁ =
solubilizing group; n ≥ 25 (number-average)]. The polymers can be
used as self-reinforcing engineering plastics and in blends (e.g.
mol. composites).

IT 154100-93-3P, Poly[(4-phenoxybenzoyl)-1,4-phenylene]
(preparation of, rigid-rod)

RN 154100-93-3 HCAPLUS

CN Poly[(4-phenoxybenzoyl)-1,4-phenylene] (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IC ICM C08G061-00

ICS C08G061-10; C08G002-00

CC 35-5 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 40

IT 150347-09-4P, 2,5-Dichlorobenzophenone homopolymer 150385-13-0P,
Poly(benzoyl-1,4-phenylene) 150385-14-1P, 2,5-Dichloro-2'-
methylbenzophenone homopolymer, sru 151173-26-1P,
2,5-Dichloro-4'-phenoxybenzophenone homopolymer 153847-44-0P
153847-45-1P, 2,5-Dichloro-3'-methylbenzophenone homopolymer
153847-46-2P, 2,5-Dichloro-2'-methylbenzophenone homopolymer
153847-48-4P 153847-50-8P 153847-52-0P, 2,5-Dichloro-4'-(2-
phenoxyethoxy)benzophenone homopolymer 153847-53-1P
153847-54-2P 154100-89-7P 154100-90-0P, 2,5-Dichloro-3'-
methylbenzophenone homopolymer, sru 154100-91-1P 154100-92-2P,
2,5-Dichloro-2',5'-dimethylbenzophenone homopolymer, sru
154100-93-3P, Poly[(4-phenoxybenzoyl)-1,4-phenylene]
154100-94-4P, 2,5-Dichloro-4'-(2-phenoxyethoxy)benzophenone
homopolymer, sru
(preparation of, rigid-rod)

L62 ANSWER 26 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1993:650764 HCAPLUS

DOCUMENT NUMBER: 119:250764
 TITLE: Macromonomers having reactive end groups
 INVENTOR(S): Gagne, Robert R.; Marrocco, Matthew Louis,
 III; Trimmer, Mark Steven; Hendricks, Neil H.
 PATENT ASSIGNEE(S): Maxdem Inc., USA
 SOURCE: PCT Int. Appl., 100 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9304099	A1	19930304	WO 1992-US5889	1992 0714
W: CA, JP, KR RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, MC, NL, SE				
US 5373056	A	19941213	US 1991-746917	1991 0819
CA 2115143	C	20021119	CA 1992-2115143	1992 0214
EP 599886	A1	19940608	EP 1992-916566	1992 0714
EP 599886	B1	20010321		
R: DE, FR, GB, IT, NL				
JP 06510315	T2	19941117	JP 1993-504293	1992 0714
JP 3245163	B2	20020107		
US 5670564	A	19970923	US 1995-457092	1995 0601
US 5824744	A	19981020	US 1995-457268	1995 0601
US 5827927	A	19981027	US 1996-645914	1996 0514
US 5973075	A	19991026	US 1998-93746	1998 0608
PRIORITY APPLN. INFO.:			US 1991-746917	A 1991 0819
			WO 1992-US5889	W 1992 0714
			US 1994-331144	B3 1994 1027
			US 1995-457268	A3

1995
0601

AB Rigid-rod macromonomers having a polyarom. backbone, solubilizing side groups, and reactive end groups are prepared and chemical incorporated into polymer systems to provide strong, stiffened polymers. Thus, stirring 6.94 mmol 2,5-dichloro-4'-methylbenzophenone and 1.88 mmol Me 3-chlorobenzoate with bis(triphenylphosphine)nickel(II) chloride 0.77, PPh₃ 1.53, NaI 1.17, and activated Zn powder 15.3 mmol in N-methylpyrrolidinone at 50° for 18 h gave a macromonomer with weight-average mol. weight 14,000 and polydispersity 1.4.

IT 151125-92-7P 151125-93-8P 151125-94-9P
151125-95-0P
(macromonomer, preparation and polymerization of, for manufacture of stiffened thermoplastics)

RN 151125-92-7 HCAPLUS
CN Poly[(4-phenoxybenzoyl)-1,4-phenylene], α,ω -bis(4-acetylphenyl)- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 151125-93-8 HCAPLUS
CN Poly[(4-phenoxybenzoyl)-1,4-phenylene], α,ω -bis[3-(phenoxycarbonyl)phenyl]- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 151125-94-9 HCAPLUS
CN Poly[(4-phenoxybenzoyl)-1,4-phenylene], α,ω -bis[4-[4-(2,5-dihydro-2,5-dioxo-1H-pyrrol-1-yl)phenoxy]phenyl]- (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 151125-95-0 HCAPLUS
CN Poly[(4-phenoxybenzoyl)-1,4-phenylene], α,ω -[2-[4-(1,3,3a,4,7,7a-hexahydro-1,3-dioxo-4,7-methano-2H-isoindol-2-yl)benzoyl]phenyl]-, stereoisomer (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IC ICM C08F283-00
ICS C08G014-00; C08G016-00; C08F283-08; C08F020-00; C08F004-46;
C08G061-00; C08G063-00; C08G002-00; C08G008-02; C08G059-00;
C08G073-06; C08G079-08; C08G077-00; C08G064-00; C08G063-02;
C08G069-14; C08G075-00

CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 37

IT 115335-45-0DP, benzocyclobutene group-terminated, hydrolyzed, reaction products with epichlorohydrin 127715-95-1DP, epoxide-terminated 136065-11-7DP, chloroacetophenone-terminated 136065-13-9DP, (cyclobutenylphenyl)ethyl group-terminated 139278-70-9DP, biphenylene group-terminated 150347-09-4DP, Me chlorobenzoate-terminated 150347-10-7DP, Me chlorobenzoate-terminated 151125-26-7P 151125-34-7DP, epoxide derivs. 151125-42-7DP, hydrolyzed 151125-43-8P 151125-44-9P 151125-45-0DP, hydrolyzed 151125-46-1P 151125-47-2P 151125-48-3P 151125-49-4DP, hydrolyzed 151125-50-7P 151125-51-8P 151125-54-1P 151125-55-2P 151125-56-3P 151125-57-4P 151125-58-5P 151125-59-6P 151125-60-9P 151125-61-0P 151125-62-1P 151125-63-2P 151125-64-3P 151125-65-4P 151125-66-5P 151125-67-6P 151125-68-7P

151125-69-8P 151125-70-1P 151125-71-2P 151125-72-3P
 151125-73-4P 151125-74-5P 151125-75-6P 151125-76-7P
 151125-77-8P 151125-78-9P 151125-79-0P 151125-80-3P
 151125-81-4P 151125-82-5P 151125-83-6P 151125-84-7P
 151125-85-8DP, epoxide derivs. 151125-86-9P 151125-88-1P
 151125-89-2P 151125-92-7P 151125-93-8P
 151125-94-9P 151125-95-0P 151172-64-4P
 151172-65-5P 151172-66-6P 151172-67-7DP, hydrolyzed, reaction
 products with epichlorohydrin 151172-68-8P 151173-24-9DP, Me
 chlorobenzoate-terminated 151173-26-1DP, chloroacetophenone-
 terminated 151174-42-4DP, maleimidobenzylphenyl group-terminated
 151174-44-6DP, benzocyclobutene group-terminated, epoxide derivs.
 151174-45-7DP, benzocyclobutene group-terminated, epoxide derivs.
 151174-47-9DP, (hydroxyethyl)phenyl group-terminated
 151174-49-1DP, aminophenyl group-terminated 151197-25-0P
 151305-47-4DP, aminomethoxymethylphenyl group-terminated

(macromonomer, preparation and polymerization of, for manufacture of
 stiffened thermoplastics)

L62 ANSWER 27 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1993:570439 HCAPLUS

DOCUMENT NUMBER: 119:170439

TITLE: Electrophotographic plate for lithographic
 masters

INVENTOR(S): Kato, Eiichi; Kasai, Kyosuke

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 71 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
JP 04318855	A2	19921110	JP 1991-112146	1991 0418

PRIORITY APPLN. INFO.: JP 1991-112146

1991
0418

AB In the title electrophotog. plate utilizing ≥ 1
 photoconductor layers containing photoconductive ZnO, spectral
 sensitizer dye, and a binder resin on an electroconductive
 support, the photoconductor layer contains ≥ 1 types of
 binder resins (A) and ≥ 1 types of nonaq. solvent-dispersed
 resin particles equal to or small in diameter than the ZnO particles.
 The binder resin (A) (weight average mol. weight $1 + 10^3 - 2 +$
 104) contain the structure-repeating unit, $[\text{CHa1Ca2}(\text{CO2R})]$ $[\text{a1}, \text{a2}$
 $= \text{H, halo, CN, hydrocarbon; R} = \text{hydrocarbon}], \geq 30\%$, and
 ≥ 1 types of polar groups selected from $\text{H2PO3, SO3H, CO2H,}$
 OH, P(O)(OH)R ($\text{R} = \text{hydrocarbon or oxyhydrocarbon}$), and cyclic acid
 anhydride group bonded to 1 end of the polymer chain. The above
 nonaq. solvent-dispersed resin particles are obtained by
 dispersion-polymerizing a monofunctional monomer containing the functional
 groups $\text{W1}(\text{CH2})\text{nCH:CH2}$ and(or) $\text{W2}(\text{CH2})\text{mCH2CH2X}$ ($[\text{W1, W2} = \text{SO2, CO,}$
 $\text{O2C; n, m} = 0, 1; \text{X} = \text{halo}]$ in the presence of a soluble

dispersion-stabilizing resin containing structure-repeating units containing Si and(or) F-containing substituents.

IT 146716-92-9P

(preparation of, as binder resin)

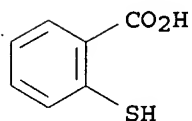
RN 146716-92-9 HCAPLUS

CN Benzoic acid, 2-mercapto-, telomer with 2-benzoylphenyl
2-methyl-2-propenoate and 2-(phosphonooxy)ethyl
2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 147-93-3

CMF C7 H6 O2 S



CM 2

CRN 146716-91-8

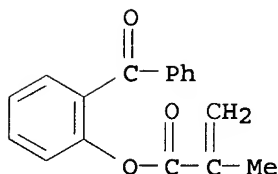
CMF (C17 H14 O3 . C6 H11 O6 P)x

CCI PMS

CM 3

CRN 59626-78-7

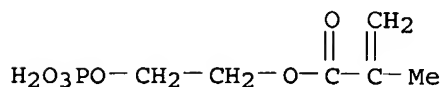
CMF C17 H14 O3



CM 4

CRN 24599-21-1

CMF C6 H11 O6 P



IC ICM G03G005-06

ICS G03G005-05; G03G005-08; G03G013-28

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and
Other Reprographic Processes)

Section cross-reference(s): 35

IT 9011-14-7DP, Methyl methacrylate homopolymer, carboxylated

128338-04-5P 128338-05-6P 138059-23-1P 138059-26-4P
 138059-27-5P 138059-28-6P 138059-29-7P 138059-30-0P
 138059-31-1P 138059-32-2P 138059-33-3P 138059-34-4P
 138059-35-5P 138059-36-6P 138123-83-8DP, carboxy-terminated
 139357-81-6P 139989-86-9P 139989-94-9P 142199-53-9P
 146115-83-5P 146716-90-7P 146716-92-9P 146716-99-6P
 146717-07-9P 149295-28-3P

(preparation of, as binder resin)

L62 ANSWER 28 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1993:570435 HCAPLUS

DOCUMENT NUMBER: 119:170435

TITLE: Electrophotographic plate for lithographic
 platemaking

INVENTOR(S): Kato, Eiichi; Kasai, Kyosuke; Yamazaki,
 Hirohisa

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 60 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 04296865	A2	19921021	JP 1991-85795	

1991
 0327

PRIORITY APPLN. INFO.: JP 1991-85795

1991
 0327

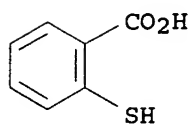
AB In the title electrophotog. plate obtained by coating an elec.
 conductive support with ≥ 1 photoconductive layer(s) containing
 photoconductive ZnO, spectral sensitizing dyes, and a binder
 resin, the above photoconductive layer(s) contains ≥ 1
 resin(s) (A) as the above binder resin and ≥ 1 types of
 nonaq. solvent-dispersed resin particles of particle size equal to
 or smaller than that of the largest ZnO particles. The above
 resin (A) (mol. weight 1 + 103-2 + 104) contains polymer
 component CHa1Ca2CO2R (a1, a2 = H, halo, CN, hydrocarbon group; R
 = hydrocarbon group) $\geq 30\%$, and ≥ 1 polar group(s)
 bonded to 1 end of the polymer main chain; the above polar groups
 being selected from PO3H2, SO3H, CO2H, P(O)(OH)R01 (R01 =
 hydrocarbon, OR02 (R02 = hydrocarbon)) and cyclic acid anhydride.
 The above nonaq. solvent-dispersed resin particles are obtained by
 dispersion polymerizing a monofunctional monomer which contains
 ≥ 1 polar group(s) selected from CO2H, SO3H, sulfinio,
 phosphono, P(O)(OH)(R0) (R0 = hydrocarbon, OR10 (R10 =
 hydrocarbon)), OH, HCO, amido, CN, NH2, cyclic acid anhydride, and
 N-containing heterocyclyl, in the presence of a nonaq. solvent-soluble
 dispersion-stabilizing resin containing ≥ 1 structure-repeating
 unit(s) containing Si- and/or F-containing substituents. The
 dispersion-stabilizing resin used contains ≥ 1 polymerizable
 double bonds in its polymer chain. The electrophotog. receptor
 with superior electrostatic and mech. properties can be obtained
 even under severe conditions, the lithog. plates show good
 printing performance, and, furthermore, the electrophotog. plate

is very useful for laser scanning-exposure.

IT 146716-92-9P
 (preparation of, electrophotog. lithog. masters from)
 RN 146716-92-9 HCAPLUS
 CN Benzoic acid, 2-mercapto-, telomer with 2-benzoylphenyl
 2-methyl-2-propenoate and 2-(phosphonooxy)ethyl
 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 147-93-3
 CMF C7 H6 O2 S

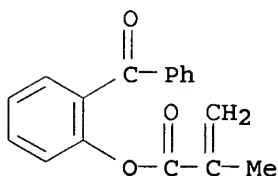


CM 2

CRN 146716-91-8
 CMF (C17 H14 O3 . C6 H11 O6 P)x
 CCI PMS

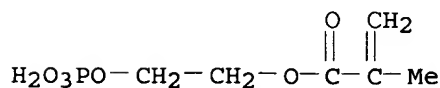
CM 3

CRN 59626-78-7
 CMF C17 H14 O3



CM 4

CRN 24599-21-1
 CMF C6 H11 O6 P



IC ICM G03G005-05
 ICS G03G005-05; G03G005-08; G03G013-28
 CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and
 Other Reprographic Processes)
 Section cross-reference(s): 35
 IT 9011-14-7DP, carboxylation product 31547-85-0DP,
 carboxy-terminated 100904-38-9P 128338-04-5P 128338-05-6P

138059-23-1P 138059-26-4P 138059-27-5P 138059-28-6P
 138059-29-7P 138059-30-0P 138059-31-1P 138059-32-2P
 138059-33-3P 138059-34-4P 138059-35-5P 138059-36-6P
 139357-81-6P 139989-86-9P 139989-94-9P 142199-53-9P
 146115-83-5P 146716-90-7P 146716-92-9P 146716-99-6P
 146717-07-9P 149839-21-4P

(preparation of, electrophotog. lithog. masters from)

L62 ANSWER 29 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1993:570434 HCAPLUS

DOCUMENT NUMBER: 119:170434

TITLE: Electrophotographic plates for lithographic master

INVENTOR(S): Kato, Eiichi; Kasai, Kyosuke

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 62 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 04296866	A2	19921021	JP 1991-85796	1991 0327

PRIORITY APPLN. INFO.: JP 1991-85796

1991
0327

AB In the title electrophotog. plate obtained by coating an elec. conductive support with ≥ 1 photoconductive layer(s) containing photoconductive ZnO, spectral sensitizing dyes and a binder resin, the above photoconductive layer(s) contains ≥ 1 resin(s) (A) as the above binder resin and ≥ 1 types of nonaq. solvent-dispersed resin particles of particle size equal to or smaller than that of the largest ZnO particles. The above resin (A) (mol. weight $1 + 103 \cdot 2 + 104$) contains polymer component $\text{CHAlCa}_2\text{CO}_2\text{R}$ ($\text{a}_1, \text{a}_2 = \text{H, halo, CN, hydrocarbon group}$; $\text{R} = \text{hydrocarbon group}$) $\geq 30\%$, and ≥ 1 polar group(s) bonded to 1 end of the polymer main chain; the above polar group being selected from $\text{PO}_3\text{H}_2, \text{SO}_3\text{H, CO}_2\text{H, P(O)(OH)R}_01$ ($\text{R}_01 = \text{hydrocarbon, OR}_02$ ($\text{R}_02 = \text{hydrocarbon}$)) and cyclic acid anhydride. The above nonaq. solvent-dispersed resin particles are obtained by dispersion polymerizing a functional monomer containing a functional group which produces $\geq \text{OH}$ group(s) on decomposition with a functional monomer containing a Si- and(or) F-containing group in the presence of a nonaq. solvent-soluble dispersion-stabilizing resin. The dispersion-stabilizing resin used contains ≥ 1 polymerizable double bonds in its polymer chain. An electrophotog. receptor with superior electrostatic and mech. properties can be obtained even under severe conditions, the lithog. plates show good printing performance, and, furthermore, the electrophotog. plate is very useful for laser scanning-exposure.

IT 146716-92-9P

(preparation of, electrophotog. plate for lithog. master using)

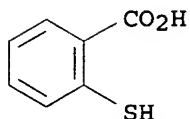
RN 146716-92-9 HCAPLUS

CN Benzoic acid, 2-mercapto-, telomer with 2-benzoylphenyl

2-methyl-2-propenoate and 2-(phosphonooxy)ethyl
2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 147-93-3
CMF C7 H6 O2 S

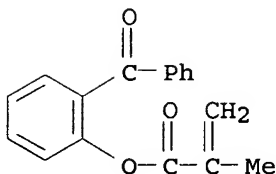


CM 2

CRN 146716-91-8
CMF (C17 H14 O3 . C6 H11 O6 P)x
CCI PMS

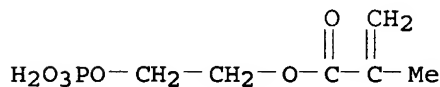
CM 3

CRN 59626-78-7
CMF C17 H14 O3



CM 4

CRN 24599-21-1
CMF C6 H11 O6 P



IC ICM G03G005-05

ICS G03G005-05; G03G005-08; G03G013-28

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and
Other Reprographic Processes)

Section cross-reference(s): 35

IT 9011-14-7DP, Methyl methacrylate homopolymer, carboxylated

128338-04-5P	128338-05-6P	138059-23-1P	138059-26-4P
138059-27-5P	138059-28-6P	138059-29-7P	138059-30-0P
138059-31-1P	138059-32-2P	138059-33-3P	138059-34-4P
138059-35-5P	138059-36-6P	138123-83-8DP,	carboxy-terminated
139357-81-6P	139989-86-9P	139989-94-9P	142199-53-9P
146115-83-5P	146716-90-7P	146716-92-9P	146716-99-6P

146717-07-9P 149265-85-0P

(preparation of, electrophotog. plate for lithog. master using)

L62 ANSWER 30 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1987:214627 HCAPLUS

DOCUMENT NUMBER: 106:214627

TITLE: Phosphorus-containing thermoplastic polymers

INVENTOR(S): Otsuki, Toshitaka; Tsuchikawa, Hideji; Kimura, Shinichi

PATENT ASSIGNEE(S): Japan Synthetic Rubber Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

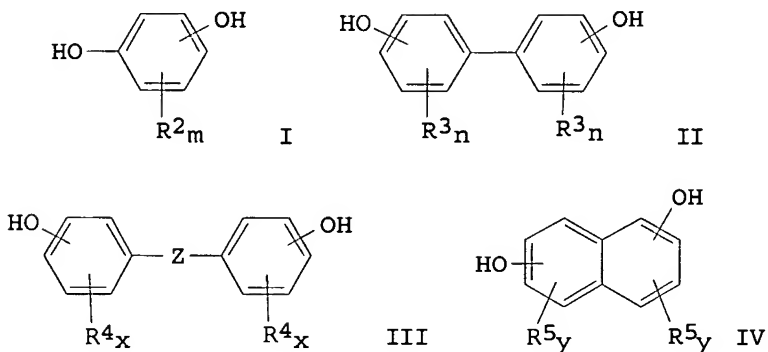
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 61261321	A2	19861119	JP 1985-101511	1985 0515
PRIORITY APPLN. INFO.:				JP 1985-101511
				1985 0515

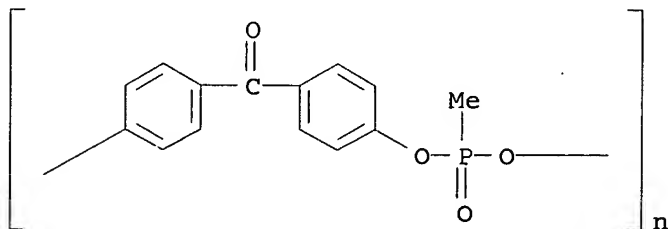
GI



AB The title polymers are prepared by polycondensation of ≥ 1 RP(O)R₁₂ or RP(S)R₁₂ (R = halo-substituted hydrocarbon group, halo; R₁ = halo) compds. and, optionally, non-P acid chlorides with ≥ 1 aromatic diol selected from I, II, III, or IV (R₂-R₅ = halo, C₁-4 alkyl; Z = alkylidene, cycloalkylene, CO, SO₂, O, S; m, n, x = 0-4; y = 0-3) in the presence of tertiary amines and N-containing heterocyclic compds. A CH₂Cl₂ solution of 30 mmol PhP(O)Cl₂ was added dropwise to a CH₂Cl₂ solution of 30 mmol bisphenol A, Et₃N, and 1-methylimidazole at 0°, the mixture stirred for 1 h, a CH₂Cl₂ solution of 3 mmol 2,2'-hydroxybiphenyl was added, and stirred for 30 min forming a polymer in 97% yield with inherent viscosity 0.97 dL/g (1 g in 100 mL 1,1,2,2-tetrachloroethane at 25°) and glass transition temperature 117°.

IT 108574-00-1P

(manufacture of,)
 RN 108574-00-1 HCAPLUS
 CN Poly[oxy(methylphosphinylidene)oxy-1,4-phenylenecarbonyl-1,4-phenylene] (9CI) (CA INDEX NAME)



IC ICM C08G079-04
 CC 35-5 (Chemistry of Synthetic High Polymers)
 IT 27734-80-1P 27756-08-7P 35398-70-0P 35429-90-4P,
 Bis(4-hydroxyphenyl) sulfone-phenylphosphonic dichloride copolymer
 108573-79-1P 108573-80-4P 108573-81-5P 108573-82-6P
 108574-00-1P
 (manufacture of,)

L62 ANSWER 31 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1987:177094 HCAPLUS
 DOCUMENT NUMBER: 106:177094
 TITLE: Phosphorus-containing polymers of high molecular weight
 INVENTOR(S): Otsuki, Toshitaka; Tsuchikawa, Hideji; Kimura, Shinichi
 PATENT ASSIGNEE(S): Japan Synthetic Rubber Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 61238826	A2	19861024	JP 1985-80243	1985 0417

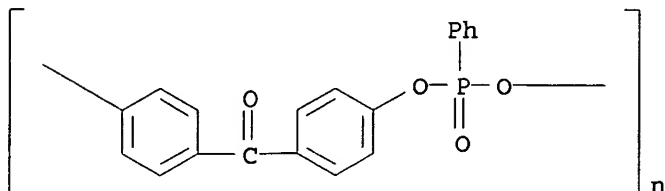
PRIORITY APPLN. INFO.: JP 1985-80243
 1985 0417

AB The title polymers were obtained in high yields from phosphonic acid chlorides and aromatic diols in an aqueous alkaline earth metal hydroxide solution in the presence of a phase transfer catalyst. Thus, 40 mmol bisphenol A and 0.8 mmol hexadecyltrimethylammonium chloride were dissolved in 150 mL water containing 14.2 g Ba(OH)₂·8H₂O, stirred with a solution of 40 mmol PhP(O)Cl₂ in 120 mL CH₂Cl₂, and washed with 0.5N HCl and then water to give a P-containing polymer with intrinsic viscosity 0.78 dL/g, glass transition temperature 117°, and Vicat softening temperature 130°.

IT 107954-16-5P

(manufacture of high-mol.-weight)

RN 107954-16-5 HCAPLUS
 CN Poly[oxy(phenylphosphinylidene)oxy-1,4-phenylenecarbonyl-1,4-phenylene] (9CI) (CA INDEX NAME)



IC ICM C08G079-04
 CC 35-5 (Chemistry of Synthetic High Polymers)
 IT 28851-37-8P 30330-98-4P 31868-41-4P 35398-61-9P
 35429-80-2P 55067-74-8P 107592-52-9P 107954-16-5P
 (manufacture of high-mol.-weight)

L62 ANSWER 32 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN

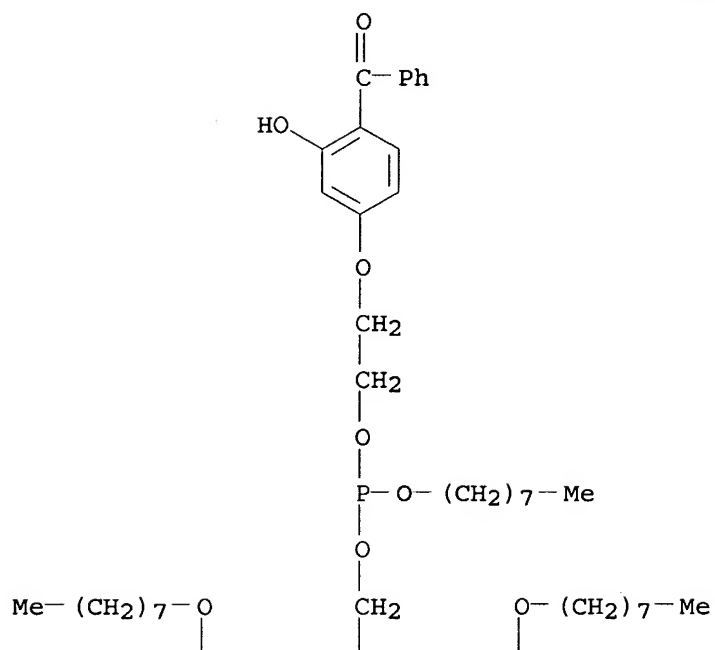
ACCESSION NUMBER: 1970:499971 HCAPLUS
 DOCUMENT NUMBER: 73:99971
 TITLE: Polypropylene compositions
 INVENTOR(S): Musha, Eito; Watanabe, Masahiko
 PATENT ASSIGNEE(S): Mitsubishi Rayon Co., Ltd.
 SOURCE: Jpn. Tokkyo Koho, 8 pp.
 CODEN: JAXXAD

DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

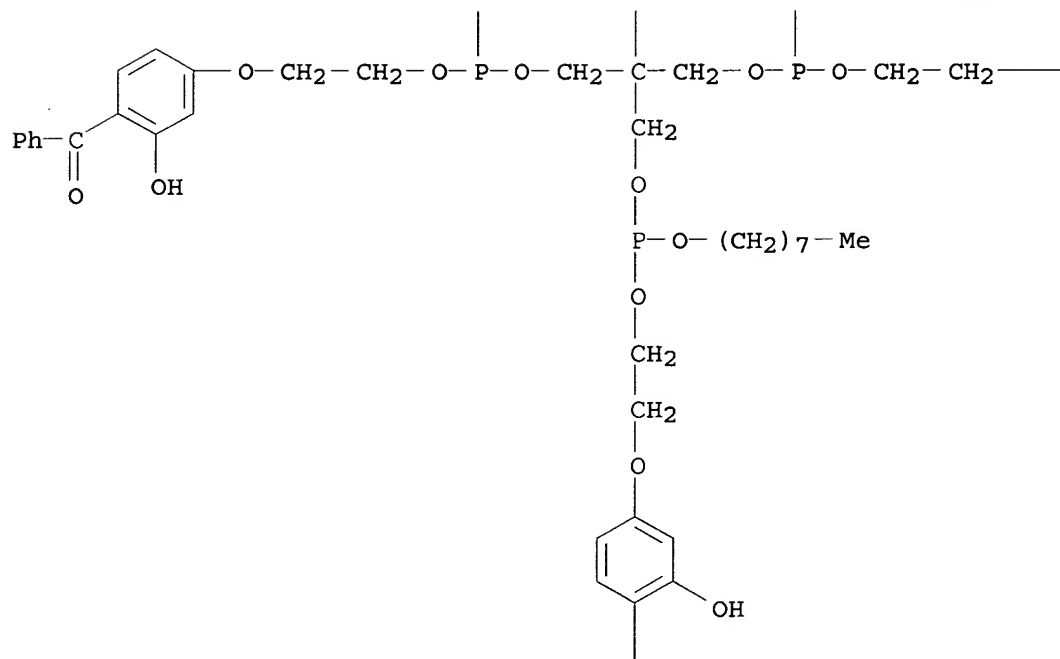
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
JP 45014187	B4	19700520	JP	1966 1219

GI For diagram(s), see printed CA Issue.
 AB I and [4,3-Bz(HO)C₆H₃OCH₂CH₂OP(OR)OCH₂]₄C [R = C₁₂H₂₅ (II), C₈H₁₇, or C₁₈H₃₇] are washfast light and heat stabilizers for polypropylene fibers, 0.01-5% stabilizers being incorporated. The stabilizers can be used with usual phenol type antioxidants (0.01-2%) such as RA-1010, Ionox 330, or Topanol CA, and 0.1-2% DLTD (didodecyl 3,3'-thiodipropionate) to show synergistic effects. C(CH₂OH)₄ was treated with PhH₂PO₃ followed by 3,4-HO(Bz)C₆H₃OCH₂CH₂OH (III) to give I. C[CH₂OP(OH)₂]₄ was treated with III and C₁₂H₂₅OH to give II.
 IT 27419-82-5 27419-83-6 27494-86-6
 (stabilizers, for propene polymer fibers)
 RN 27419-82-5 HCAPLUS
 CN Phosphorous acid, neopentetetrayl P,P',P'',P'''-tetraoctyl ester, 4,4',4'',4'''-tetraester with 2-hydroxy-4-(2-hydroxyethoxy)benzophenone (8CI) (CA INDEX NAME)

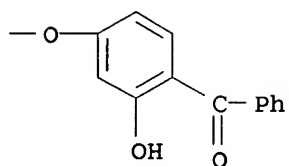
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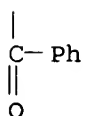
PAGE 2-A



PAGE 2-B

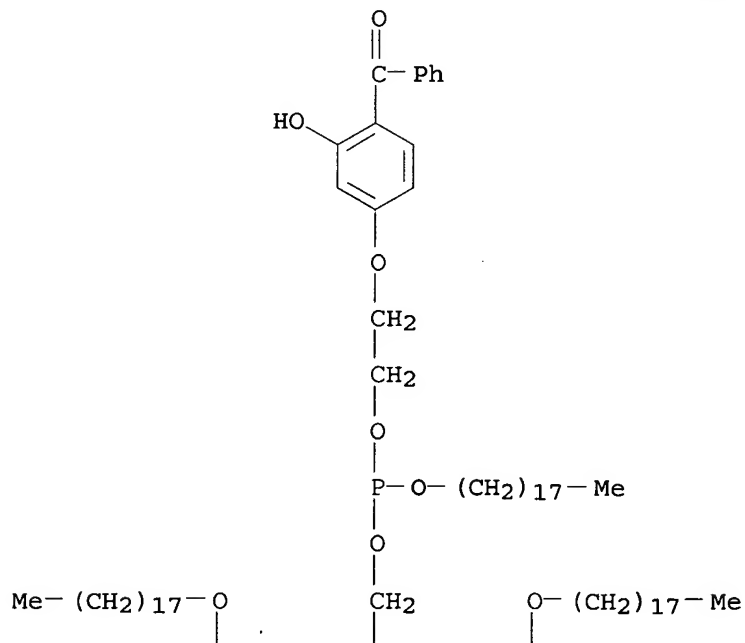


PAGE 3-A

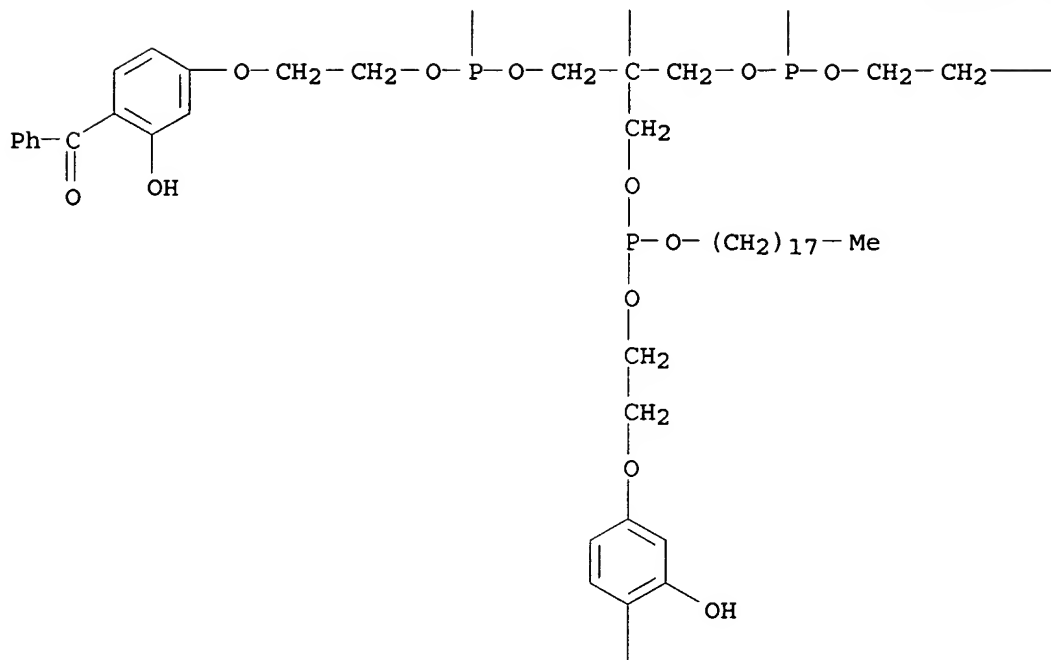


RN 27419-83-6 HCAPLUS
 CN Phosphorous acid, neopentetetrayl P,P',P'',P'''-tetraoctadecyl ester, 4,4',4'',4'''-tetraester with 2-hydroxy-4-(2-hydroxyethoxy)benzophenone (8CI) (CA INDEX NAME)

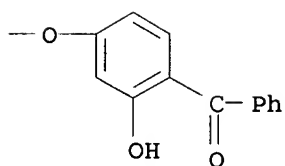
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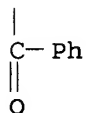
PAGE 2-A



PAGE 2-B

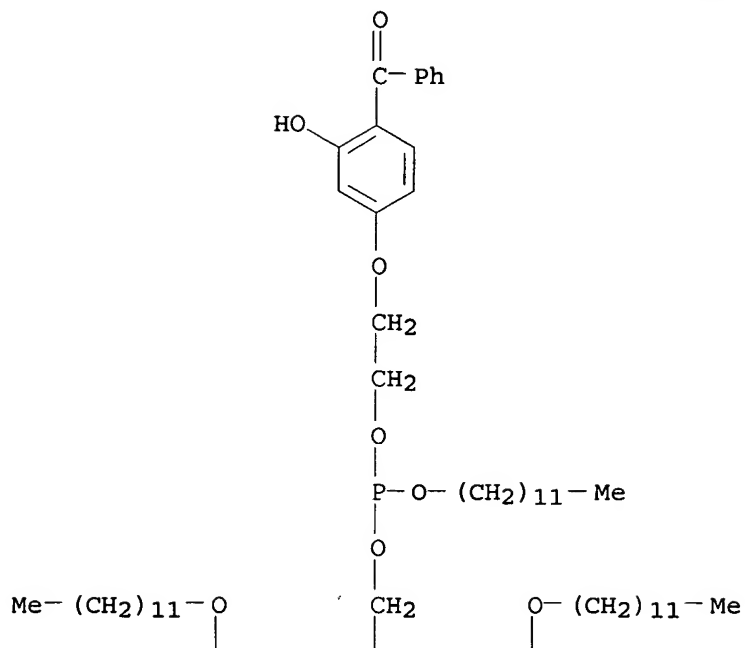


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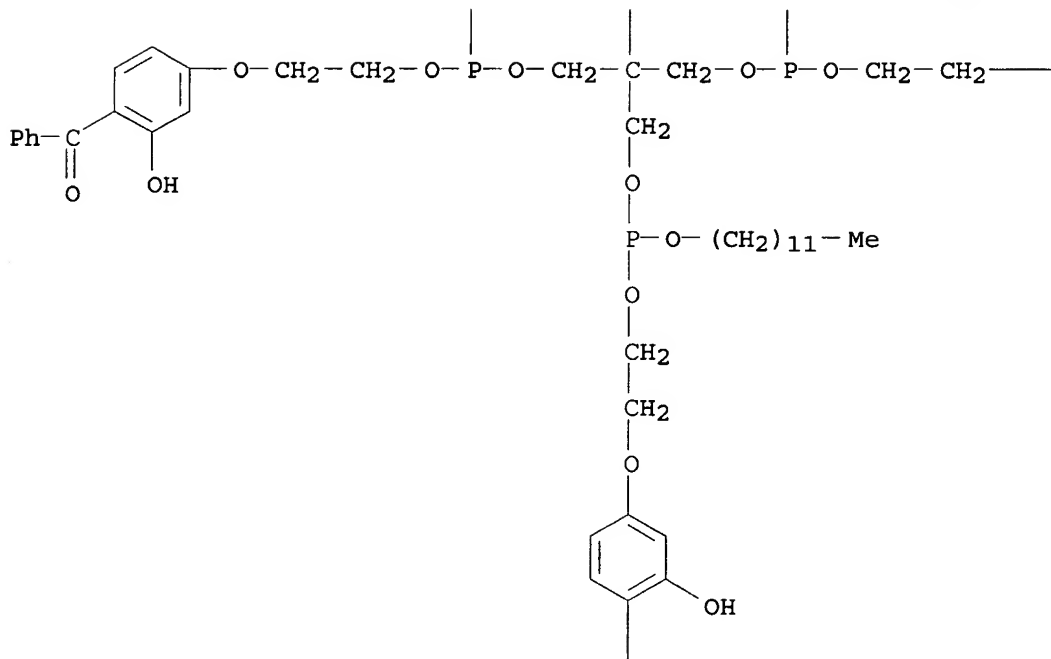


RN 27494-86-6 HCAPLUS
 CN Phosphorous acid, neopentetetrayl P,P',P'',P'''-tetradodecyl ester, 4,4',4'',4'''-tetraester with 2-hydroxy-4-(2-hydroxyethoxy)benzophenone (8CI) (CA INDEX NAME)

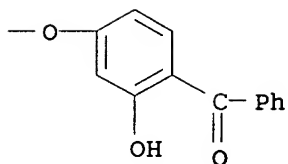
PAGE 1-A



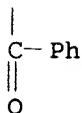
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INCL 25H31
 CC 39 (Textiles)
 IT 180-66-5D, 2,4,8,10-Tetraoxa-3,9-diphosphaspiro[5.5]undecane,
 derivs. 27419-81-4 27419-82-5 27419-83-6
 27494-86-6
 (stabilizers, for propene polymer fibers)

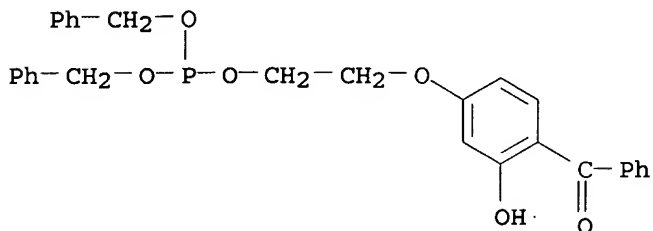
L62 ANSWER 33 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1970:112740 HCAPLUS
 DOCUMENT NUMBER: 72:112740
 TITLE: Stable polypropylene compositions
 INVENTOR(S): Musha, Eito; Watanabe, Masahiko
 PATENT ASSIGNEE(S): Mitsubishi Rayon Co., Ltd.
 SOURCE: Jpn. Tokkyo Koho, 5 pp.
 CODEN: JAXXAD
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 44027467	B4	19691114	JP	1966 1206

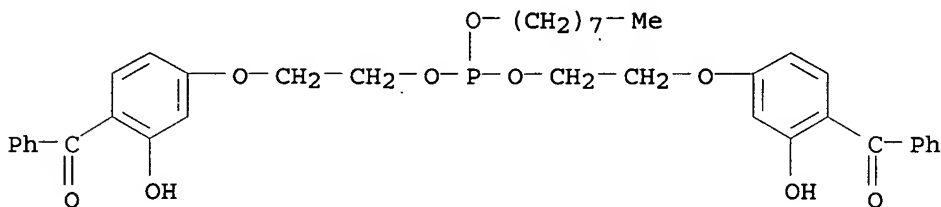
GI For diagram(s), see printed CA Issue.

AB Polypropylene resin with good uv degradation resistance and thermal oxidation resistance was prepared by mixing the resin with a phosphite stabilizer having the general structure I, where R1, R2 = alkyl groups or β -(4-benzoyloxy-3-hydroxyphenoxy)ethyl groups. Crystalline polypropylene was mixed with 0.5% β -(4-benzoyl-3-hydroxyphenoxy)ethyl dibenzyl phosphite, spun at 290°, and stretched 7 times at 130°. The oxidation stability (hr required for oxidation at 140°) was 10. whereas that of polypropylene fiber containing 2-hydroxy-4-(octyloxy)benzophenone instead of the phosphite was 2. Similarly used stabilizers were β -(4-benzoyl-3-hydroxyphenoxy)ethyl bis(p-methylphenyl) phosphite, β -(4-benzoyl-3-hydroxyphenoxy)ethyl phosphite, and bis[β -(4-benzoyl-3-

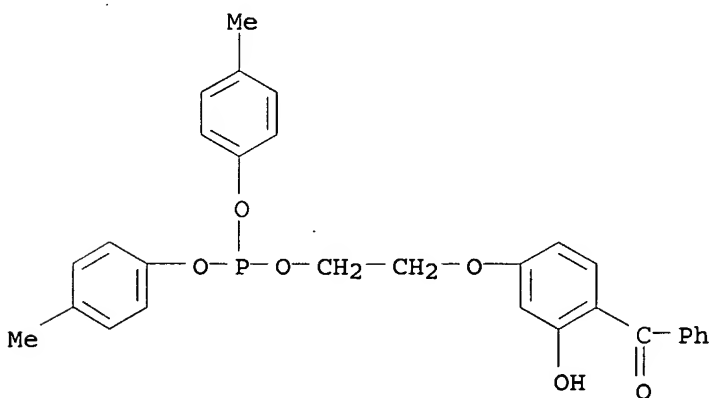
hydroxyphenoxy)ethyl] octyl phosphite.
 IT 25675-69-8 25675-71-2 25725-63-7
 27942-33-2
 (ultraviolet light stabilizers, propene polymer fibers containing)
 RN 25675-69-8 HCAPLUS
 CN Phosphorous acid, dibenzyl ester, 4-ester with
 2-hydroxy-4-(2-hydroxyethoxy)benzophenone (8CI) (CA INDEX NAME)



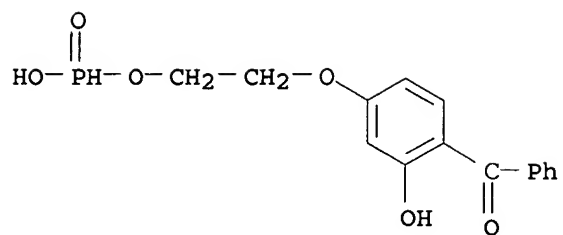
RN 25675-71-2 HCAPLUS
 CN Phosphorous acid, octyl ester, 4,4-diester with
 2-hydroxy-4-(2-hydroxyethoxy)benzophenone (8CI) (CA INDEX NAME)



RN 25725-63-7 HCAPLUS
 CN Phosphorous acid, di-p-tolyl ester, 4-ester with
 2-hydroxy-4-(2-hydroxyethoxy)benzophenone (8CI) (CA INDEX NAME)



RN 27942-33-2 HCAPLUS
 CN Phosphonic acid, 4-monoester with 2-hydroxy-4-(2-hydroxyethyl)benzophenone (8CI) (CA INDEX NAME)



INCL 25H31

CC 39 (Textiles)

IT **Antioxidants**, uses and miscellaneous
(phenols, propene polymers containing)

IT 25675-69-8 25675-71-2 25725-63-7

27942-33-2

(ultraviolet light stabilizers, propene polymer fibers containing)